INNERMOST ASIA

DETAILED REPORT OF EXPLORATIONS IN CENTRAL ASIA, KAN-SU, AND EASTERN ĪRĀN

OXFORD UNIVERSITY PRESS
LONDON: AMEN HOUSE, E.C. 4
EDINBURGH GLASGOW LEIPZIG
COPENHAGEN NEW YORK TORONTO
MELBOURNE CAPETOWN BOMBAY
CALCUTTA MADRAS SHANGHAI
HUMPHREY MILFORD
PUBLISHER TO THE
UNIVERSITY

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CARRIED OUT AND DESCRIBED UNDER THE ORDERS OF H.M. INDIAN GOVERNMENT BY

SIR AUREL STEIN, K.C.I.E.

INDIAN ARCHAEOLOGICAL SURVEY





VOL. I TEXT

WITH DESCRIPTIVE LISTS OF ANTIQUES BY F. H. ANDREWS AND F. M. G. LORIMER; AND APPENDICES BY J. ALLAN E. BENVENISTE, A. H. FRANCKE, L. GILES, R. L. HOBSON T. A. JOYCE, S. KONOW, A. VON LE COQ, W. LENTZ S. LÉVI, H. MASPERO, F. E. PARGITER, R. SMITH W. J. SOLLAS, R. C. SPILLER, F. W. THOMAS, V. THOMSEN

OXFORD
AT THE CLARENDON PRESS
1928



TO THE MEMORY OF

GENERAL SIR HENRY RAWLINSON, BART.

WHOSE LABOURS IN THE FIELD AND STUDY
ILLUMINATED THE ANCIENT HISTORY OF ASIA
THIS RECORD IS INSCRIBED IN
GRATEFUL REMEMBRANCE AND
SINCERE ADMIRATION FOR
THE EXPLORER, THE SCHOLAR, AND THE MAN

INTRODUCTION

The plan of the explorations recorded in these volumes was based upon the experiences and results of my travels during the years 1906–8. In the course of these I had explored ancient remains and carried out surveys through the whole length of Eastern Turkestān to the westernmost marches of China and Tibet. The fascination of archaeological problems and the geographical interest of vast areas which, in spite of their present barrenness, have a historical past, combined to draw me back to that great region of innermost Asia. Ruined sites long ago abandoned to the desert have there preserved for us relics of an ancient civilization that grew up and flourished for a thousand years under the joint influences of Buddhist India, China, and the Hellenized Near East. As my thoughts recurred, while I worked on the results of my second Central-Asian journey, to the openings for fruitful exploration which, from lack of time, I had hitherto been obliged to neglect, the call of those vast deserts was imperative.

Proposal for third expedition.

The labour entailed by the arrangement and study of the large collection of antiques which I had brought back from those travels to the British Museum kept me busy in England until the end of 1911. The record of the results, as embodied in the volumes of *Serindia*, claimed most of my time even after I had returned to India and was engaged on archaeological work on the familiar ground of the North-West Frontier and Kashmir. That heavy task was still very far from completion when in the autumn of 1912 a variety of considerations induced me to submit to the Government of India my proposal for a long-planned third expedition in Central Asia. Among these the favourable political conditions then prevailing in the regions to be visited within the limits of China and Russian Turkestān were not the least important. In view of the changes that we have since witnessed, I have special reason to feel grateful for the shrewd advice of two kind friends, Sir Henry McMahon, then Foreign Secretary to the Government of India, and Sir George Macartney, H.B.M.'s Consul-General at Kashgar, which helped me to decide on an early start.

Sanction of proposed explorations.

Lord Hardinge, the then newly arrived Viceroy of India, had from the first shown a kind interest in my past labours, and I remember with sincere gratitude the very encouraging auspices under which I thus embarked on my new plans. For the generous support which the Government of India accorded to my proposals I was largely indebted to two kind friends, Sir Harcourt Butler, who as Member of the Governor-General's Council was then the enlightened head of the Education Department and has since been in succession Governor of the United Provinces and Governor of Burma, and Sir John Marshall, Director-General of Archaeology in India. The latter, as the Government's chief adviser in archaeological matters, has never failed to lend me his most cordial and effective aid in all the efforts entailed by the preparation of my successive Central-Asian expeditions and the working out of their results. The proposals as finally sanctioned in April, 1913, by H.M.'s Secretary of State for India, included provision for the payment in three successive years of a total grant of £3,000 to cover the estimated cost of the intended explorations,[1] the Indian Government reserving to themselves in return an exclusive claim to whatever 'archaeological proceeds' in the shape of antiques, &c., my expedition might yield. It was understood that

[1] This provision was supplemented in 1915 by a further grant of Rs. 12,000. This was necessitated partly by the increased cost of transporting to India the bulky collection of antiques and partly by the rapid rise of prices, &c., which made itself felt after the outbreak of the war throughout the regions visited.

the Museum of Indian Ethnography, Art, and Archaeology which it was designed to instal at New Delhi would be the first to benefit by prospective 'finds'. Thus by the close of July 1913 I was free to set out from Kashmīr for another long journey.

Help of Survey of India.

For the geographical investigations which were intended to play a large and important part in my travels, most effective help from the Survey of India was assured to me from the outset. Colonel Sir SIDNEY BURRARD, then Surveyor-General of India, very readily extended to this part of my programme the same unfailing aid and encouragement by which my previous topographical surveys and their publication had benefited so greatly. He kindly agreed to depute to assist me my old experienced travel companion Rai Bahādur Lāl Singh, Sub-Assistant Superintendent, Survey of India, and also to make available the services of a second Surveyor of the Department. Apart from a special grant to cover the expenses connected with the employment of these surveyors, the Survey of India also provided all requisite surveying equipment, including that to be used by myself and a third assistant, Miān Afrāz-gul Khān, whose valuable help will be presently noted.

Support of R. Geographical Society.

In connexion with the wide extension of our topographical labours which was thus rendered possible, I must record also my very grateful appreciation of the moral support which the Royal Geographical Society generously gave me, in addition to granting the loan of some surveying instruments. From the constant sympathy and friendly interest with which Sir JOHN KELTIE, the Society's lamented Secretary, ever followed my efforts, I never ceased to derive true encouragement.

Interrelation of geographical and historical interest.

In devoting so large a share of my care and attention to work of direct geographical interest I was guided by two important considerations. On the one hand my explorations were taking me through portions of innermost Asia where extensive areas, both in the barren mountains and in the desert wastes of the great drainageless basins, were still in need of systematic survey or practically unmapped. On the other hand these very regions, though in some respects deserving to be counted among the least attractive portions of our globe, are, when studied on the ground with an eye to their past, singularly fitted to illustrate the close interrelation between physical features and human activity, as reflected by history and archaeological relics. In my lecture on 'Innermost Asia: its Geography as a factor in History',[2] I have fully discussed the reasons which make it particularly important for the historical and antiquarian student of that great region of Asia to pay the closest attention to its peculiar geographical features. I have shown in the same lecture how helpful for the investigation of much-discussed physical changes may be the study on sound critical lines of the traces which the human past, whether of historical or prehistoric periods, has left on such ground.

Record of topographical work.

The important bearing here briefly indicated which the exact record of topographical facts must have upon archaeological research in this region will explain the special value that I attach to the generous help of the Survey of India, since it has made it possible to issue with the present publication the atlas of detailed maps forming Vol. IV. These 47 map sheets on the scale of 1:500,000 have been prepared at the Trigonometrical Survey Office, Dehra Dun. They embody the carefully compiled results of all the surveys made on my three Central-Asian expeditions. These surveys comprised throughout continuous plane-table work by my assistants and myself, and, where conditions would permit, triangulation and astronomical observations. How great were the labours in the field involved by these systematic surveys is sufficiently indicated by the fact that they extended over no less than 28 degrees of longitude and 8 degrees of latitude. The appearance within the limits of these maps of unsurveyed and in many cases wholly unexplored areas is to be attributed to the exceptional physical difficulties of penetrating the vast forbidding deserts and the lofty and almost equally desolate mountains that constitute the major portion of this ground.

[2] See *Geographical Journal*, 1925, lxv, May–June, pp. 377–403, 473–98.

Preparation of maps.

The great extent of the ground and the varied nature of the materials brought back from the different journeys necessarily made the task of compiling, drawing, and reproducing these maps a very heavy one. The work, begun in 1916, had to be carried on for the most part during a period when operations connected with the war threw a great strain upon the Survey Department. My special thanks are therefore due to Colonels Sir Gerald Lenox-Cunyngham, E. A. Tandy, and H. McC. Cowie, R.E., successively in charge of the Trigonometrical Survey Office, for the steadily continued efforts which secured the final completion of the maps by the summer of 1922.

Memoir on Maps.

These maps have come to comprise a vast but well-defined region of innermost Asia which, by its present conditions and by its important role in the past as the meeting-place of the civilizations of India, China, and the West, is attracting more and more the attention both of the geographer and of the historical student. It had been my constant endeavour in the field to make our surveys as exact and detailed a record of the prevailing physical features as limitations of scale, time, training, &c., would permit, and the revision of the maps in the successive stages of drawing and reproduction has during the years which followed involved no small amount of personal labour on my part.[2a] I feel therefore glad that the preparation of a detailed *Memoir*, which with the sanction of Colonel C. H. D. Ryder, Surveyor-General of India, was published as Vol. XVII of the *Records of the Survey of India*,[3] has enabled me fully to record the history of all the surveys carried out under my direction, to discuss the chief physical features determining the character of each distinct geographical area, and to furnish detailed notes on the materials used for each individual map sheet. In that Memoir full explanations will also be found as regards the methods of compilation, the representation of physical details, and the record of local names. To that publication I may be allowed to refer also for my grateful appreciation of the manifold and most willing help I received in the preparation of the cartographical records of my journeys from Officers connected with the Trigonometrical (now Geodetic) Branch of the Survey, especially the late Colonel R. A. Wauchope, Colonel H. H. Turner, Dr. J. de Graaff Hunter, and Majors F. J. M. King, K. Mason, and W. E. Perry.

Work of R. B. Lāl Singh.

To the amount of work which Rai Bahādur Lāl Singh, a veteran of indefatigable energy, accomplished in the course of my third expedition, the *Memoir* and the maps themselves bear ample testimony.[4] Of the very serious hardships, not always free from risks, under which his surveys in waterless deserts and high wind-swept ranges were carried out, it will be possible for the reader of the present volumes to form some idea.

Other Indian assistants.

My selection of two other Indian assistants who completed my small staff also proved very fortunate. In Naik Shamsuddīn, a corporal and now a Jamadār of the Bengal (King George's Own) Sappers and Miners, the loan of whose services the kind offices of Major-General J. E. Dickie, R.E., enabled me to secure from that distinguished Corps, I found a very capable and helpful 'handy-man' for all work requiring technical skill. The other assistant was a young military surveyor, Miān Afrāz-gul Khān, a Pathān of the saintly Kāka-khēl clan and then a Sepoy in the Khyber Rifles. Having been first employed by me in 1912, on Sir George Roos-Keppel's recommendation, in connexion with excavations on the NW. Frontier, he soon proved by his energy and

[2a] The fact that the map drawings, proofs, &c., had in most cases to be revised by me before the corresponding portions of my report were written will help to explain the instances where slight mistakes of compilation or draughtsmen's errors escaped my attention.

[3] See '*Memoir on Maps of Chinese Turkistān and Kansu.* From the surveys made during Sir Aurel Stein's explorations, 1900–1, 1906–8, 1913–5, by Sir Aurel Stein, K.C.I.E. With Appendices by Major K. Mason, M.C., R.E., and J. de Graaff Hunter, Sc.D.' Trigonometrical Survey Office, Dehra Dun, 1923. Fol., pp. xiii, 208; 29 plates; 12 charts.

[4] As far as possible I arranged for R. B. Lāl Singh to follow routes independent of my own; for the method by which these routes have been distinctly marked on the maps, see *Memoir*, pp. 60 sq.

superior intelligence a very useful practical helper in archaeological field work. His keen topographical sense and zeal allowed me in addition to make use of him with distinct advantage on survey work.[5] The marked ability and pluck displayed by him were recognized on our return by the award of the Macgregor Silver Medal and secured him admission to the Survey of India as Sub-Assistant Superintendent. This appointment has been fully justified by the distinguished services which Miān, now Khān Sāhib, Afrāz-gul Khān has since rendered.

Extent of journey.

The close links I have indicated above between the archaeological and geographical purposes of this voyage will help to account for its wide extent. When I returned in March, 1916, to Kashmīr, it had lasted close on two years and eight months, and the aggregate of the distances covered by my marches amounted to nearly 11,000 miles. The objects of my expedition were not confined to the exploration of ruined sites from which to gather fresh materials for antiquarian and philological research in Museum and study. Quite as important in my opinion were the observation and record of whatever could throw light on the past and present of the ground traversed by those ancient Central-Asian routes which for centuries had been the channels of trade and cultural intercourse, and by which the influences of religious belief and political conquest had linked China with India and the Near East. It is for this reason that the record of this journey takes the reader from the passage land of westernmost China across the whole Tārīm basin to the uppermost Oxus and to Īrān, from the Hindukush valleys in the south to Dzungaria and Inner Mongolia in the north-east. Exacting claims on my time since my return from this expedition have not allowed me to publish a personal narrative of it, such as might have served as a guide to the scope and bearing of the record presented in the present volumes. Hence a rapid synopsis of their contents may usefully find a place here.

Start for Kāshgar through Darēl and Tangīr.

The favourable conditions that happened to prevail at the time of my start from Kashmīr allowed me to pass through the valleys of Darēl and Tangīr, a Hindukush territory never visited before by any European and since closed again through lapse into tribal anarchy (Chap. I).[6] There I traced the route by which Chinese pilgrims in Buddhist times used to make their way down to the Indus. Then travelling through Yāsīn I crossed the glacier pass of the Darkōt, the scene of a memorable Chinese military exploit, and crossing the snowy ranges enclosing the head-waters of the Karambār and Hunza rivers reached Chinese territory on the Tāghdum-bāsh Pāmīr. On my way thence to Kāshgar I examined certain old remains in the great Sarīkol valley, and then surveyed a new route down the difficult gorges of the Kara-tāsh river, which had so far remained unexplored (Chap. II).

Help of Sir George Macartney.

A brief stay at Kāshgar under the hospitable roof of my old friend Sir George Macartney, H.M. late Consul-General, allowed me to organize my caravan and to benefit greatly by the practical help and advice which this kind friend gave me with regard to my intended explorations. Conditions of Chinese administration in the 'New Dominion' had greatly changed since the revolution, and it was mainly due to the unfailing watchfulness and energetic support exerted from afar by that ever-helpful friend that serious interference with my plans, owing to official obstruction, was avoided. I shall always remember very gratefully the great and manifold advantages which his exceptional influence and forethought secured for me throughout my travels on Chinese soil.

From Kāshgar I traced an ancient route through unsurveyed desert along the outermost

[5] For the excellent work done by Afrāz-gul Khān on the supplementary survey he carried through the Lop Desert in February-March, 1915, under considerable difficulties and privations, see below, ii. pp. 741 sqq.

[6] In the *Map to illustrate routes followed by Sir Aurel Stein through Chilās, Darēl and Tangīr* (see Vol. iv), prepared since Chapter I was printed, there have been embodied the results of the plane table survey, on the scale of 2 miles to the inch, carried out by R. B. Lāl Singh under my direction over some 1,200 square miles of ground which had never been mapped before or even seen by European eyes.

T'ien-shan to Marāl-bāshi (Chap. III. sec. i, ii). I then endeavoured to traverse from that point the great 'sand ocean' of the Taklamakān in a straight line to the Mazār-tāgh hill on the Khotan river. The attempt, however, was baffled, after trying marches, by the formidable sand ridges that we encountered, but not before I had been able to secure definite evidence of the geographically important fact that an ancient range, now completely effaced by wind-erosion, had at an earlier period joined those hills to the isolated rock islands around Marāl-bāshi. Travelling along the Yārkand river and then up the dry bed of the Khotan river, I reached the Mazār-tāgh hill, where numerous Tibetan documents were recovered near a ruined fort, and the remains of a Buddhist shrine were traced (Chap. III. sec. iii, iv). Journey to Marāl-bāshi and Khotan.

Having regained my old base at Khotan I secured there a considerable collection of small antiques from the ancient capital and other old sites of the oasis (Chap. IV. sec. i, ii). Rapid as was necessarily the journey of close on 700 miles to the Lop Desert, the main goal of that winter's explorations, it allowed me to revisit the areas of ancient settlements abandoned to the desert beyond Domoko and the termination of the Niya river. In the latter area I succeeded in supplementing my former discoveries by observations and finds of distinct antiquarian interest, the latter including a further collection of Kharoṣṭhī documents on wood (Chap. IV. sec. iii, iv). Having reached the last inhabited ground towards the Lop Desert by the beginning of 1914, we explored two small sites to the south of Charkhlik, and then, resuming work at Mīrān, recovered early frescoes and other remains from Buddhist shrines of the 'old eastern town' of Shan-shan (Chap. V). There I was rejoined by R. B. Lāl Singh after an absence of four months, during which among other survey work he had carried his triangulation along the main K'un-lun range over five degrees of longitude eastwards. Explorations between Khotan and Mīrān.

A short-lived 'revolutionary' outbreak at Charkhlik having allowed me to escape the obstruction with which I was seriously threatened, I started my long-planned explorations in the waterless desert of Lop. They led to the discovery of two ruined sites of ancient Lou-lan, abandoned since the early centuries of our era, which yielded interesting relics. The crossing of the wind-eroded desert northward revealed a succession of dry river-beds, unmistakably proving a southern extension of the delta in which the 'Dry River' that once watered the Lou-lan of Han times had emptied itself into the bed of the ancient Lop Sea (Chap. VI).[7] Work started in Lop Desert.

Resumption of work at and around the walled Chinese station of Lou-lan led to the discovery of more relics of the traffic that once came here by the earliest Chinese route leading into the Tārīm basin. From grave-pits containing burial remains of the first centuries before and after Christ we recovered, besides other relics, a mass of remarkable textiles, including fine specimens of the earliest known figured Chinese silks as well as woollen tapestries showing clear evidence of Hellenistic art influence (Chap. VII. sec. i–vi). Reconnaissances pushed farther into the desert north-eastward led to the discovery of an ancient Chinese *castrum* and an outlying watch-post with a burial-ground containing remarkably well preserved bodies of the ancient indigenous population of Lou-lan (Chap. VII. sec. viii). Relics of ancient Lou-lan.

With the help of the indications thus secured, we were able subsequently to start on the very difficult task of tracing the route which the Chinese had followed in their earliest trade and military

[7] In order adequately to show all the details of geographical or archaeological interest recorded in the course of our surveys across the Lop Desert, both on the second and third expeditions, there has been prepared for insertion in Vol. iv the special *Map of the Lop Desert*, on the scale of 5 miles to 1 inch.

This map, which is enlarged with additions and corrections from Sheets Nos. 29, 32 of the general Map Series contained in Vol. iv, was reproduced at the Dehra Dun Survey Office after Chapters VI–VIII and XX. sec. iii had been passed through the press. It should be referred to in preference for all topographical and other details mentioned in those chapters.

Chinese route through Lop Sea-bed.

enterprises towards Central Asia, across the forbidding salt-encrusted bed of the ancient Lop Sea, and the equally desolate waterless wastes around it. How, thanks to lucky archaeological finds and the scanty notices preserved in the Chinese Annals, I succeeded in tracing this route right through to its eastern end, near an old terminal basin of the Su-lo-ho in the desert of Tun-huang, has been recorded in Chapters VIII and IX.

Westernmost Chinese Limes.

I had now arrived on ground which had retained a special fascination for me since the explorations of my second expedition on the westernmost extension of the ancient Chinese Limes. In the desert to the north-west of the Tun-huang oasis and then again east of it towards An-hsi I traced portions, previously unexplored, of that protected line of Han times, the remains of its ruined watch-towers yielding further early Chinese records on wood (Chap. X. sec. i, iii). In the course of these labours I was able to pay a fresh visit to the 'Caves of the Thousand Buddhas', south-east of the oasis. Besides other relics I secured there a not inconsiderable addition to the collection of ancient Chinese manuscripts which I had recovered in 1907 from the great cache of its walled-up chapel, in the shape of some 570 well-preserved rolls containing texts of the Buddhist Canon (Chap. X. sec. ii).

Han Limes explored to Mao-mei.

For a month from the middle of April, 1914, I was occupied in tracing and exploring the remains of the ancient Chinese Limes eastwards, first along the Su-lo-ho to its bend below Yü-mên-hsien, and then through the desert to the Mao-mei oasis at the confluence of the rivers of Su-chou and Kan-chou (Chap. XI, XII). Chinese records on wood found at ruined watch-posts proved that this portion of the Limes, which we explored over a distance of more than 250 miles, was originally constructed about the close of the 2nd century B.C. as a defence against the Huns, and was garrisoned down to later Han times.

Explorations along Etsin-gol.

The friendly support of the Tao-t'ai of Su-chou enabled me to push from Mao-mei down the Etsin-gol into a portion of southernmost Mongolia and to explore remains, dating mainly from the Tangut and Mongol domination, at and near the site of Khara-khoto first discovered by Colonel Kozlov. Besides obtaining abundant remains of manuscripts and block prints in the Tangut language and Tibetan, as well as other archaeological finds, we were able to make interesting geographical observations regarding the Etsin-gol valley and its delta. At all times it had served as a highway for nomadic inroads from the north, and Marco Polo's account of it was fully verified on the spot (Chap. XIII).

Pei-shan ranges crossed into Dzungaria.

Marching south from Khara-khoto through unsurveyed desert hills, we gained the city of Kan-chou and thence set out for the high ranges of the Nan-shan. There a serious accident prostrated me in the middle of July; but R. B. Lāl Singh's energy made it possible to round off, as I had intended, our topographical work of 1907 in that great mountain region by a survey of the head-waters of the Kan-chou river (Chap. XIV). We regained Mao-mei at the close of August, and thence by a month's arduous travel over ground almost wholly unexplored crossed the utterly barren ranges of the Pei-shan and the eastern extremity of the T'ien-shan (Chap. XV). Our journey beyond, along the northern foot of the latter, acquainted me with portions of eastern Dzungaria which have played an important part in the history of China's Central-Asian expansion. Finally it brought us to the ancient site of Pei-t'ing and, by an old route across the T'ien-shan known so far only from T'ang accounts, down into the basin of Turfān (Chap. XVI).

Winter's work at Turfān sites.

The great number of ancient remains to be found within or close to the oases of the Turfān district reflect its importance, as fully attested by its early history (Chap. XVII). Though these sites had been the scene of very fruitful excavations by several preceding expeditions, there remained scope for profitable archaeological work and also for a detailed survey of an area of great geographical interest. During our stay, which lasted through the winter, we were able to make a close

examination of all the more important sites and to secure, besides other antiques, a considerable collection of interesting mural paintings from ruined Buddhist shrines (Chap. XVIII). Particularly ample results rewarded the exploration of a large burial-ground near Astāna, the deposits of its tombs yielding abundant relics of the early T'ang period, such as figured silks, stucco figurines, and other objects of artistic or technical interest (Chap. XIX).

Visit to Urumchi.

From Turfān I paid a rapid visit to the provincial head-quarters at Urumchi, north of the T'ien-shan. It enabled me to see again my old Mandarin friend P'AN TA-JÊN (Mr. P'an Ch'ên 潘 震),[7a] whose kind support, which I had experienced on all my former explorations, was now helping to ward off threatened official obstruction. To the memory of this lamented friend, who died in 1926, still in office and honoured throughout Hsin-chiang for his high character, true scholarship, and rare integrity, I wish to offer here my tribute of sincere respect and gratitude.

Explorations in Kuruk-tāgh.

During these months R. B. Lāl Singh had carried out extensive survey operations in the waterless Kuruk-tāgh range to the south. Starting in the middle of February, 1915, I was able to supplement these by work in the western portion of the same desert region and by the exploration of ancient burial-grounds along the 'Dry River' that once flowed to Lou-lan. At the same time our topographical knowledge of the Lop Desert was enlarged by a survey which Afrāz-gul successfully carried out under very trying conditions (Chap. XX). Moving between the western foot of the Kuruk-tāgh and the Konche-daryā which had once fed the 'Dry River', I examined the remains marking the line by which the ancient highway from China gained the string of oases along the northern rim of the Tārīm basin (Chap. XXI). Our move westwards by the latter allowed me to trace the line followed by the ancient *Pei-lu*, the 'Northern Route' of the Chinese Annals, to Kuchā, and subsequently to explore a series of old sites now abandoned to the desert which mark the former extent of this large oasis, important both geographically and historically (Chap. XXII, XXIII). While R. B. Lāl Singh was carrying his survey along the T'ien-shan as high up as the early season would permit, I myself rapidly travelled to Kāshgar by the present caravan route, acquainting myself with ground that I had not previously visited (Chap. XXIV).

Move to Kuchā and Kāshgar.

Journey across Pāmīrs and Upper Oxus Valleys.

After arranging during a busy stay at Kāshgar for the safe transport to Kashmīr of my collection of antiques (which filled 182 cases), I started in the middle of July, 1915, for my journey across the Russian Pāmīrs and the valleys of the Upper Oxus. It was greatly facilitated by the friendly offices of Prince MESTCHERSKY, the Russian Consul-General at Kāshgar, and Colonel I. D. JAGELLO, then commanding the Pāmīr Division. Passing down the great Alai valley I followed the route of the ancient silk trade from China, as described by Marinus. Then crossing the succession of high ranges which divide the main feeders of the Oxus, I reached ground on the Alichur and Great Pāmīrs which had seen the passage of the armed forces as well as the Buddhist pilgrims of China (Chap. XXV). As I made my way through Wakhān and up and down the secluded alpine valleys of Ghārān, Rōshān, Shughnān, and Darwāz, I was able to examine ruined strongholds of early date and throughout to observe much that is ancient in the racial type of the people, their language, and ways of living (Chap. XXVI). The anthropometrical materials here collected are discussed by Mr. T. A. JOYCE in Appendix C. After regaining in Kara-tegīn the route of the old silk traders towards Baktra I travelled through the hills of Bokhāra to Samarkand. Thence the Transcaspian railway allowed me to gain Persian ground. Subsequently, a rapid but instructive journey of three weeks along the Perso-Afghān border, brought me safely to Sīstān by the close of November, 1915 (Chap. XXVII).

Past Samarkand and Perso-Afghān border.

[7a] See below, ii. pp. 634 sq.; Fig. 298. For the constant help which P'an Ta-jên had rendered me ever since my first visit to Khotan in 1900, cf. *Ancient Khotan*, i. pp. 237 sq., 307, &c.; *Ruins of Khotan*, pp. xxi, 200, 214 sqq.; *Desert Cathay*, i. p. xvi; ii. pp. 421 sqq.; *Serindia*, i. pp. x, 311; iii. pp. 1185, 1273.

Explorations in Sīstān.

My winter's work in that small but geographically very interesting *pendant* of the Tārīm basin,[8] was successfully begun with a survey of the large ruined site on the sacred hill of Kōh-i-Khwāja. It was rewarded by the discovery of wall-paintings and other remains going back to Sasanian times (Chap. XXVIII). While most of the numerous ruined structures examined in the Persian portion of the present Helmand delta were found to date from Muhammadan times (Chap. XXIX), surveys in the desert to the south, once watered from a branch of the river, revealed remains dating from far more remote periods.[9] There on wind-eroded ground I discovered sites of prehistoric settlements marked by stone implements as well as by abundant painted pottery closely linked in type with corresponding relics of chalcolithic times that have come to light in localities so far apart as Transcaspia, Mesopotamia, Balūchistān, and Western China. And across this area of prehistoric occupation, now all desert, I was able to trace a line of ruined watch-stations, which certainly dates from pre-Muhammadan times and curiously recalls the ancient Chinese Limes on the far-off Kan-su border (Chap. XXX). With a three weeks' camel ride by the caravan route connecting Sīstān with the railhead at Nushki my journey came to an end about the end of February, 1916.

Prehistoric remains in desert south.

Collection deposited at Srinagar.

Some four months earlier my collection of antiquities had, under R. B. Lāl Singh's watchful care, safely arrived in Kashmīr. The fortunate circumstance that Mr. Fred H. Andrews, O.B.E., then and for a number of years thereafter had charge of the Technical Institute of Kashmīr at Srinagar, made it possible for me to leave the collection in the care of that artist friend. His close association with the custody and examination of my former collections, no less than his exceptional familiarity with Eastern arts and crafts in general, made him once more a most valued collaborator in the heavy and multifarious work involved in the arrangement, close study, and description of the thousands of objects now brought together. I therefore felt very grateful when sanction was secured for the temporary deposit of the new collection at Srinagar under Mr. Andrews' care for the purposes above indicated.

Mr. F. H. Andrews' work on antiques.

There during the years 1917–22, Mr. Andrews devoted whatever leisure he could spare from his heavy administrative and educational duties to the preparation of the Descriptive Lists of Antiques which are included in the present Report and which are mainly his work. In addition he utilized his winter vacations of those years and subsequent cold-weather periods, while on special duty under the Indian Government, for the exacting task of setting up the many fine mural paintings brought away from ruined Buddhist shrines. As these wall-paintings, all executed in tempera on mere mud plaster, were to be accommodated and exhibited at New Delhi in a temporary museum specially erected for the purpose, very careful treatment was indispensable to assure their future preservation from climatic and other risks.[10] This labour has now been completed. But the reproduction and interpretation of these important remains of Buddhist pictorial art in Central Asia will claim a separate publication, now in preparation. Hence, with the exception of a number

Treatment of mural paintings.

[8] For convenience of reference the portion of the 1:1,000,000 Sheet No. 30, from the Survey of India's Series, *India and Adjacent Countries*, showing the main area of the Sīstān basin, has been reproduced at the Dehra Dun Survey Office and inserted as a separate map in Vol. iv of the present publication.

[9] In order adequately to illustrate the position of the ancient remains, &c., surveyed in the desert to the south of the present Helmand delta, the corresponding portion of Degree Sheet No. 30 F of the Survey of India (published 'for Official Use only') has been reproduced, with the needful additions, at the Dehra Dun Survey Office and inserted as a separate map in Vol. iv.

For permission kindly granted for this reproduction I wish to express here my thanks to the Chief of the General Staff in India.

[10] For the very skilfully devised methods and special materials used by Mr. Andrews in treating and setting up these wall-paintings, which in some cases cover surfaces of as much as 16 feet by 10, see his full statement in the *Annual Report of the Archaeological Survey*, 1921–2, pp. 98 sqq.

of minor pieces which could be treated at Srinagar, the wall-paintings of my third collection have not been included in the Descriptive Lists of the present work.

Collection to be permanently housed at New Delhi.

This collection as a whole, in accordance with the orders of Government, will be housed at the New Delhi capital, excepting representative specimens to be presented to the British Museum.[11] Reference to the originals will therefore not be practicable, except in rare cases, for those students in the West who are interested in researches bearing upon Central-Asian and Far Eastern art and civilization. This consideration rendered it all the more important that all entries in the Descriptive Lists should be exact and adequately detailed.[12] For this purpose Mr. Andrews was provided with the assistance of Miss F. M. G. LORIMER, who, as one of the assistants engaged on the objects collected in the course of my second expedition, had acquired ample experience in dealing with Central-Asian antiquities. The efficient help rendered by her at Srinagar during the years 1919–22 proved once again of considerable value. I ought to add that while the Descriptive Lists have thus been prepared by competent hands, their contents have been throughout carefully checked and, where necessary, revised by myself, when dealing in the present Report with the observations on the sites and objects concerned.

Labours on *Serindia* and present publication.

After my return in 1916 from the explorations recorded in these volumes I was placed on special duty for the purpose first of completing *Serindia*, the detailed report of my second expedition, and then of carrying through the varied work entailed by the elaboration and record of the results of the third expedition. This arrangement, which the constant friendly support of Sir EDWARD MACLAGAN, then Secretary to Government in the Education Department, and Sir JOHN MARSHALL, greatly facilitated, has since enabled me to devote myself wholly to these labours. During the years 1916–18, spent partly on deputation to England and partly in Kashmīr, *Serindia* claimed most of my time. The preparation of the present work, which followed, was necessarily interrupted during 1920, when the heavy task of passing the volumes of *Serindia* through the press kept me fully engaged for some eight months at Oxford. This visit to England was utilized for temporarily transferring to the British Museum the manuscript materials recovered on my third expedition and arranging for their examination and cataloguing. During 1921 I was obliged to devote most of my time to the publication of *The Thousand Buddhas*, the much-needed complement of *Serindia*, which deals with the pictorial treasures recovered from Tun-huang, and to the preparation of my above-mentioned *Memoir on Maps of Chinese Turkistan and Kansu*.

Work at British Museum.

Work on the Report steadily carried on in 1922–3, together with the completion of the Descriptive Lists of Antiques, made it possible for me, with the sanction of Government, temporarily to transfer in 1924 to the British Museum that portion of the Collection from which the specimens now comprised in the plates illustrating this Report had to be selected for reproduction. For the exacting task of making these selections and assuring the proper execution of the plates while on deputation in England, I fortunately had again the benefit of Mr. F. H. ANDREWS' expert help.

[11] This does not apply to the literary remains, for which deposition at the India Office Library and at the British Museum, on the lines followed in the case of those from the second expedition, is under consideration.

[12] The arrangement of entries in the *Descriptive Lists* closely corresponds to that followed in the case of *Serindia* and explained there, i. p. xv, note 16.

The numerical order of the 'site-marks' has been followed throughout. These were entered on the objects at the time of discovery, acquisition, or unpacking. Hence this numerical order nowhere represents an attempt at systematic classification. 'Site-marks' given at the time of discovery show the initial letter of the site, the number of the ruin, room, &c., followed by plain Arabic figures, *e.g.* N. III. x. 15. When the objects had been marked by me on the spot only with the place of the 'finds', and consecutive numbers in Arabic figures have been subsequently added, whether in the course of the journey or at the time of unpacking, these numbers are preceded by a zero, *e.g.* L.M. II. iii. 02.

The abbreviations *R.* and *L.* indicate the right and left side of objects as they are seen in reproductions, except where the right and left proper of the human body are referred to.

At the same time he directed and supervised the proper treatment and illustration of hundreds of specimens of ancient textiles. This arduous work was greatly assisted by the convenient accommodation and other facilities which Sir FREDERIC KENYON, Director of the British Museum, with the ready assent of its Trustees, kindly put at our disposal. For this generous help I may be allowed to express here my deep sense of gratitude.

Assistance received at British Museum.

If the many extremely delicate and fragile objects recovered from the desert sands and ruined sites of the most arid parts of Asia survive in future the effect of wholly different climatic conditions, it will be largely due to the special treatment it was possible to secure at the British Museum. Through the same ready co-operation it became possible during the summer of 1925 to arrange a temporary exhibition of representative specimens of antiques in the Ceramic Gallery of the British Museum. In its arrangement as well as in other tasks Mr. Andrews and myself received very useful assistance from Miss J. JOSHUA. For all the advantages thus enjoyed during our work at the British Museum my very grateful acknowledgements are due to the Keepers and Deputy Keepers of the Departments directly concerned, Dr. L. D. BARNETT, Mr. LAURENCE BINYON, Mr. O. M. DALTON, Dr. L. GILES, Mr. R. L. HOBSON, as well as to Dr. ALEXANDER SCOTT, in charge of the British Museum Laboratory.

Completion of Report.

During the period of my deputation to England, which extended to the autumn of 1925, I was able to complete my manuscript of Chapters I–XXIV dealing with the explorations on Chinese soil and to begin delivering it to the press. After my return to India a fortunate opportunity arose of carrying a fruitful archaeological tour into Upper Swāt and the adjacent tribal territory, once the scene of Alexander's memorable Frontier campaign and hitherto inaccessible for research.[13] This tour and certain urgent tasks imposed by its results prevented my finishing the remaining six chapters until towards the close of 1926.

Work on Chinese documents and inscriptions.

It would have been impossible for me to make these volumes a comprehensive record of the antiquarian and kindred results of my expedition but for the manifold and very effective help I received from fellow-scholars and others. Among the written remains brought to light in the course of my journey, the Chinese documents and inscriptions were those most likely to yield information bearing on archaeological and historical points. In respect of these Chinese records I suffered the loss of a hoped-for collaborator of unequalled eminence by the death of my lamented friend M. ÉDOUARD CHAVANNES. On my passage through Paris in May 1916 the greatest of Western Sinologues of our times had very kindly promised his help towards the publication of the Chinese materials brought back from my third journey. But his death in the spring of 1918 frustrated the hope of seeing them soon made available for research in a companion volume to his *Documents Chinois*, to which my *Serindia* had owed so much.

Collaboration of M. MASPERO.

Deprived of this hope I had reason to feel very grateful to M. HENRI MASPERO, his pupil and successor in the chair of the Collège de France, who on his return from the Far East in 1921 kindly undertook the study and eventual publication of those materials. To him I am indebted for the translation of four of the sepulchral inscriptions from the cemetery of Astāna, comprised in Appendix *A* and provided with valuable notes throwing light also on the pre-T'ang chronology of Turfān. In addition, M. Maspero has very kindly placed at my disposal preliminary abstract translations, with notes, of most of the Chinese documents on wood and paper recovered from ruins of the ancient Han Limes of Turfān and other sites. The antiquarian information gleaned from them has so far as possible been utilized by me in Chapters X–XII, XVIII, XIX. For this help I wish to record here my sincere thanks, coupled with the hope that these interesting materials may before long be made fully accessible by M. Maspero in a proposed separate publication.

[13] Cf. *Serindia*, i. pp. 2 sqq. [See now my paper, 'Alexander's Campaigns on the Indian North-West Frontier', *Geographical Journal*, 1927, November–December, pp. 417–440, 515–540.]

Help of Chiang Ssŭ-yeh.

M. Maspero's labours have been greatly facilitated by the transcripts which my valued friend Chiang Ssŭ-yeh (Mr. Chiang Hsiao-yüan 蔣孝琬), the Chinese secretary of my second expedition, had prepared of numerous documents during my stay at Kāshgar in June, 1915. He had bestowed upon this task the same thorough critical care that had made him during my former journey the best of scholarly helpmates.[14] Regard for his state of health had obliged me, to my great regret, to forgo his services on my third journey; but even from afar this devoted Chinese assistant continued to prove his keen interest in my labours until his lamented death in 1922.

Collaboration of Dr. Giles.

My heartiest thanks are due to Dr. L. Giles, Deputy Keeper of Oriental Printed Books and Manuscripts, British Museum, for his very valuable assistance in undertaking the difficult task of translating and interpreting the sepulchral inscriptions from Astāna, available only in photographs, as well as the records on ancient textiles (see Appendix I). The work of cataloguing the great collection of Chinese manuscripts recovered in 1907 from the Thousand Buddhas of Tun-huang, upon which he has been engaged for a number of years past, will, I hope, be extended to the abundant supplementary materials brought back from my third expedition. In addition I feel deeply indebted to Dr. L. Giles for the unfailing kindness with which he has at all times been ready to assist me from his store of Sinologue knowledge. To Mr. L. C. Hopkins, I.S.O., my thanks are due for the decipherment of certain Chinese seals, as well as for the verification of Chinese characters and transcripts in some of the proof-sheets.

Inventory Lists of MSS. in Brāhmī script.

It was a source of special satisfaction to me when the late Mr. F. E. Pargiter, I.C.S. (ret.), was kind enough to undertake in 1920 the preparation of an Inventory List of manuscript remains, mainly in Sanskrit. His former collaboration with the late Dr. A. F. R. Hoernle and his own painstaking care made him the right successor to a task which that true pioneer of Central-Asian philological researches might have claimed, had he survived. Appendix *E* shows the great amount of unsparing scholarly labour that Mr. Pargiter has devoted to the task, even where the fragmentary state of the materials rendered it far from attractive. Professor Sten Konow, the distinguished Indologist of Oslo University, who has made the language of ancient Khotan the subject of special studies, honoured me by offering to examine the manuscript remains in that tongue. If the Inventory List contributed by him in Appendix *F* also includes text fragments in Sanskrit and Kuchean, this is due to the difficulty experienced after my departure from England in 1920 in securing an exact classification of the smaller materials in Brāhmī script.

Collaboration on Kharoṣṭhī, Kuchean, and Sogdian records.

As regards the Kharoṣṭhī documents recovered from the sites of Niya and Lou-lan (Chap. IV, VI, VII), it is gratifying to know that their decipherment, undertaken by Professor E. J. Rapson with the assistance of Mr. P. S. Noble, will before long permit the completion of the important publication, comprising all Kharoṣṭhī records discovered on my journeys, to which Professor Rapson and in association with him M. Émile Senart and Abbé Boyer have devoted so much scholarly effort for close on twenty-five years.[14a] These materials are the oldest surviving original documents in Indian script and language, of an administrative, legal, or private character. Their complete edition, together with a full Index, will, I hope, stimulate studies which are bound to throw interesting light on the conditions of life prevailing in the Tārīm basin during the early centuries of our era. To my old friend M. Sylvain Lévi, the great French Indologist, I am indebted for the interpretation of the fragments of texts and records in Kuchean, reproduced in Appendix *G*, while his pupil M. E. Benveniste has furnished welcome notes (Appendix *H*) on manuscript

[14] Regarding Chiang Ssŭ-yeh's former help, cf. *Serindia*, ii. pp. 569, 593 sqq., 646, 714, &c. For a portrait taken of him at our final parting in 1915, see below, Fig. 355.

[14a] See *Kharoṣṭhī Inscriptions discovered by Sir Aurel Stein in Chinese Turkestān. Transcribed and edited by A. M. Boyer, E. J. Rapson, and E. Senart*, Clarendon Press, Oxford. Fasciculus i, 1920; fasc. ii, 1927, 4to.

remains in Sogdian, including a fairly long letter in that early form of Sogdian writing which was first discovered by me on the Tun-huang Limes. Dr. W. Lentz has instructively treated in Appendix *P* an interesting fragment of a Manichaean parchment in later Sogdian script and language.

Examination of Turkish, Mongol, Tibetan, and Tangut MSS.

Turning to literary remains in languages other than Indo-European, I must record my tribute of gratitude in the first place to the late Professor Wilhelm Thomsen, the great decipherer of the Runic Turkish inscriptions, for having honoured this publication with the exhaustive treatment of a text fragment of Manichaean origin in that script (Appendix *Q*). Professor A. von Le Coq, the distinguished archaeologist and Turcologist, has put me under a special obligation by kindly contributing an *Inventory List* of manuscript and block-print remains in Uighur, Mongol, and Sogdian scripts (Appendix *K*). Dr. A. H. Francke, a valued collaborator on the Tibetan materials brought back from my former expeditions, has translated and annotated a Tibetan inscription discovered on the Darkōt Pass (Appendix *L*). Professor F. W. Thomas, who from the first had devoted much expert attention to the abundant Tibetan materials recovered on my second journey, has kindly furnished me with useful indications also as regards those brought back from the third. Notes of his concerning certain Tibetan MSS. are contained in Appendix *R*. It had been a source of encouragement to me when Dr. B. Laufer, the learned Director of the Field Museum, Chicago, agreed in 1920 to take charge of the very numerous written and block-printed remains from Khara-khoto in the Tangut or Hsi-hsia tongue, as yet but very imperfectly elucidated, for the purpose of an inventory. Unfortunately other claims on his time obliged him to renounce this intention in 1925. To him, however, is due the transcript of the Tibetan characters which in one manuscript (see Pl. CXXXIV) furnish a phonetic rendering of the Hsi-hsia syllabic signs. These may yet prove helpful towards the study of the language.

Mr. Andrews' help for art remains.

Among those who gave me valuable help with regard to relics of arts and crafts I must mention in the first place Mr. F. H. Andrews. The most helpful guidance afforded by the Descriptive Lists of antiquities in which his was the main share has already been indicated above and is reflected in many of my chapters. I may, however, single out for special mention the advantages I derived from his penetrating study of the ancient textiles (Chap. VII, XIX),[15] his expert comments on drawings and paintings excavated (Chap. XIII, XIX, XXVIII), and his thorough analysis of the interesting remains of prehistoric painted pottery from Sīstān (Chap. XXX).[16] From Mr. Andrews' hand is also the Descriptive List, contained in Appendix *M*, of the antiques, including a number of interesting painted panels and wood-carvings, which Mr. H. I. Harding, late British Vice-Consul at Kāshgar, acquired at Khotan and generously presented for the Delhi collection.

Collaboration on other antiques.

To Mr. Laurence Binyon is due, besides much other friendly guidance, the expert description of the remnants of a remarkably fine Chinese painting from a tomb of Astāna (Chap. XIX).[17] Mr. R. L. Hobson, from his exceptionally wide knowledge of ceramic art in Asia, has supplied in Appendix *D* a very helpful synopsis of the varied ceramic products represented in the collection. Mr. Reginald A. Smith, Deputy Keeper, British Museum, besides supplying me with descriptive notes on the individual stone implements discovered (Chap. VI, VII, XXX), has in Appendix *N* compared their type with that of corresponding discoveries in widely distant parts of Asia. The

[15] First discussed in 'Ancient Chinese Figured Silks excavated by Sir Aurel Stein at ruined sites of Central Asia. Drawn and described by F. H. Andrews', *Burlington Magazine*, July–September, 1920.

[16] For a first abstract account, see 'Painted Neolithic Pottery in Sīstān, discovered by Sir Aurel Stein. By Fred H. Andrews', *Burlington Magazine*, December, 1925.

Mr. Andrews' analysis of the Sīstān painted pottery has been of very great help to me also in dealing with the abundant remains of a closely corresponding ceramic art, discovered on my archaeological tour of 1927 in northern Balūchistān and belonging to the chalcolithic period.

[17] See 'Remains of a T'ang painting discovered by Sir Aurel Stein. Described by Laurence Binyon', *Burlington Magazine*, June, 1925.

Inventory List of coins in Appendix *B* has been prepared from notes which Miss F. M. G. Lorimer had compiled with much patient care. Mr. J. Allan, Deputy Keeper, British Museum, was good enough to check and where necessary to supplement these notes, besides making the selection of coins reproduced in Plates CXIX, CXX. To Mr. Allan I must record my thanks also for the practical help he has given by undertaking since 1920, under an arrangement sanctioned by the India Office, the care of all manuscript materials issued to collaborators or returned.

Inventory of coins.

The anthropological field of research has derived distinct benefit from the thorough analysis to which Mr. T. A. Joyce, Deputy Keeper, British Museum, in Appendix *C* has subjected the anthropometrical records collected by me in respect of some 430 individuals on the Pāmirs, in the Upper Oxus valleys, and Sīstān. Owing to the fact that the measurements made on this journey were obtained largely in secluded alpine valleys, Mr. Joyce's present *Note on the Physical Anthropology of the Pāmīrs and Oxus Basin* is a particularly welcome supplement to his previous contributions dealing with the racial elements to the south and east of the Pāmirs, as observed by me on my first two expeditions.

Mr. Joyce's analysis of anthropometrical records.

If I have left to the last the expression of my thanks for the very valuable contribution to the present report made by Professor W. J. Sollas, F.R.S., and his assistants Messrs. R. C. Spiller and D. F. W. Baden-Powell, it is merely because the specimens of rock and sand of which they have furnished an exhaustive analysis in Appendix *O* belong wholly to the field of physical research. They were collected by me in the course of our travels through the Tārim basin and the desert ranges to the east of it. Though unfortunately devoid myself of geological training, I was encouraged to collect them by the interest which my regretted friend, the distinguished Hungarian geologist Professor L. de Lóczy, had shown in similar, if less extensive, materials brought back from my first two expeditions.[18] My visits to Professor Sollas's laboratory in the University Museum, Oxford, made me realize the heavy labour involved in the petrological examination of these specimens. To Dr. A. B. Rendle, Keeper of Botany, British Museum, I am indebted for the determination of certain archaeologically interesting plant remains.[19]

Prof. Sollas on rock and sand specimens.

It still remains for me to record my grateful acknowledgements for the manifold help which has furthered the production of the present work. In the first place my thanks are due to the Government of India, which generously sanctioned the proposals submitted by me in 1923, with the support of the late Dr. B. Spooner, then officiating as Director-General of Archaeology in India. They thereby rendered it possible to secure for the publication all the advantages offered by the Oxford University Press. For the constant care and attention which this great *officina* has bestowed on this work, as on former Reports of mine, I feel sincerely grateful. In respect of all detailed arrangements which were subsequently needed during my deputation to England in 1924–5 I received much kind consideration from Sir Atul C. Chatterjee, High Commissioner for India, and his Office. The execution of the plates illustrating antiques was carried out by Messrs. Henry Stone and Son, of Banbury, with the skill and care attested by their work on the plates of *Serindia* and the *Thousand Buddhas*. It is gratifying to note that in the truthful

Printing of present Report.

[18] See 'Notes on sand and loess specimens, by L. de Lóczy', Appendix *G*, *Ancient Khotan*, i. pp. 588 sqq. The sand and loess specimens brought back from my second expedition have been fully examined and described by Dr. A. Vendl, working under Professor de Lóczy's instructions, in the *Annual Reports of the R. Hungarian Geological Survey*, 1913, vol. xxi, pp. 1–33, Figs. 1, 2 (in Hungarian; for a German translation, see 'Mineralogische Untersuchungen der von Dr. Aurel Stein in Zentral-Asien gesammelten Sand- und Bodenproben', in *Mittheilungen aus dem Jahrbuche der Kgl. Ungar. Geologischen Reichsanstalt*, xxi).

Professor de Lóczy, as a member of Count Széchenyi's expedition, had in 1879 had occasion to carry out important geological investigations in the region of Tun-huang and Su-chou. For hints of great archaeological value which I received from him, cf. *Serindia*, ii. p. 791; below, i. p. 511.

[19] See below, ii. pp. xxi sqq., 756.

reproduction by three-colour process of selected specimens of ancient figured textiles, &c., the same high standard has been maintained.

Help with proofs.

Owing to my return to India it had been impossible for me to see more than one proof of the text beyond Chapter VII. Even for the reading of that single proof the time available was very scanty and the conditions of work in camp or on travel far from favourable. Hence I have much reason to feel grateful for the valuable help rendered by Dr. L. GILES, who generously undertook the reading of all the proofs, especially in order to assure correctness of Chinese names and terms. Similar useful assistance was rendered by Miss J. JOSHUA with regard to the verification of all references, whether to Descriptive Lists, Plates, &c., or to other publications. In view of the difficulties created by the above conditions it was very reassuring that, under an arrangement approved by Government, it has been possible to entrust the reading of 'revises' of the text from Chapter VIII onwards to Dr. E. NORMAN GARDINER, of Oxford. The same very competent scholar also kindly undertook to prepare the Indices. For the painstaking care he has bestowed upon this troublesome task I wish to express here my sincere gratitude.

While I have been engaged in the labours now completed, my thoughts have ever turned longingly to those far-off deserts and mountains which have seen the most cherished portion of my life's work. Limitations of time have not allowed me to present a personal narrative of this journey. But readers who know my *Sand-buried Ruins of Khotan* and my *Desert Cathay* may well feel, when consulting this record of my third expedition, that the efforts faced by me in the field, notwithstanding the attendant hardships, meant for me less strain than the prolonged desk-work involved by the elaboration of its results. Whether Fate will allow me to visit regions of innermost Asia still calling for fresh explorations, only the future can show. But I feel gratitude for having been permitted, in the alpine peace of the same high mountain camp where twenty-nine years ago I planned the first of my Central-Asian journeys, to complete the record of the third.

AUREL STEIN.

CAMP, MOHAND MARG, KASHMIR:
August 25, 1927.

ADDENDA ET CORRIGENDA

P. 3, l. 18. *Omit*: Great and.

P. 9, l. 21. *Add note 12a*: For the topography of Chilās and of the territories of Darēl and Tangīr, described in Chap. I. sec. iii–v, reference should be made to the *Map to illustrate routes followed by Sir Aurel Stein through Chilās, Darēl and Tangīr*, in vol. iv.

P. 19, l. 16. *For* Ishkobar *read* Ishkōbar.
l. 18. *For* Chiyagil *read* Chayagal.

P. 86, l. 18. *Add note 11a*: For a petrological description of these rock flakes, see Professor Sollas's Appendix *O*, ii. p. 1073, Nos. 107–8; also p. 1077.

P. 89, l. 14. *Add note 17a*: But see now Professor Sollas's Appendix *O*, ii. p. 1060, for rock specimens from this ridge, brought away on my first visit to Imām Ja'far Sādiq's shrine in 1901.

P. 92, l. 41. *Add*: (see Fig. 95).

P. 96, r. col., l. 50. *Add*: M. Tagh. 0655. c. Fr. of paper, with drawing of man leading camel; lower part only. To L. man wears black top-boots, loose trousers and coat to knee. He walks in front of camel, whose off fore-leg is lifted with the action of a horse. Spirited sketch. Dull red is washed on man's coat and on camel. Paper buff, torn away above, partly below and at L. end. 4¼" × 12½".

M. Tagh. 0655. d. Fr. of paper, with part of drawing of group of donkeys or mules in heavy black outline washed in with grey. One animal nearly complete, but legs missing. Above, the legs and part of body of another. Both carrying loads and wearing bridles. To R., ears and line of nose of a third and above, one knee and tip of nose of a fourth. A cord links two together, one behind the other. Paper buff, torn at all sides. 6" × 6½".

M. Tagh. 0655. e. Fr. of paper, with drawing of mules boldly and well drawn. Upper part of one mule and neck and shoulder of a second behind, and partly in advance of, first. Grey wash on body of first may represent load. Paper buff, lower part cut away. Ends torn. 4" × 8¾".

M. Tagh. 0655. f. Two frs. of paper, one with sketch of hind legs of a horse, walking, with tail tied in knot. Interesting in its rendering of hock and hoof. Paper buff; torn. Gr. fr. 4¾" × 3".

P. 99, l. 38. *For* C. Hardinge *read* H. L. Harding.

P. 100, note 13, l. 4. *Add*: and Appendix *F*.

P. 101, l. 3. *For* (M.T. 01–2) *read* (T.M. iii. 01–2, see App. *F*, ii. p. 1028).

P. 144, l. 39. *After* N. xii *add* (Fig. 104).

P. 145, l. 36. *Omit*: (Fig. 104).
l. 38. *Add*: (see Fig. 93).

P. 147, note 21. *Add*: For a view of the neighbouring ruin N. iv, see Fig. 102.

P. 165, l. 13. *For* (Koy. ii, i. 09) *read* Koy. i. 09.

P. 167, l. 2. *For* (See Pl. CXXI) *read* (see Pl. Koy. i. 20, Pl. CXXI).

P. 171, note 8. *Add*: Regarding the location of *Yü-ni*, see also below, ii. p. 575, note 21.

P. 188, l. 32. *For* Wu-chu *read here and elsewhere* Wu-shu.
l. 35. For Ho-ch'üan *read here and elsewhere* Huo-ch'üan.

P. 195, l. 15, margin. *For* L.M. iii *read* L.M. ii.

P. 197, l. 22. *For* March 9 *read* March 8.

P. 214, note 1. *Omit*: [For an assumed Chinese name of L.A., see M. Maspero's App. *A*].

P. 215, l. 4. *For* Stūpas L.A. x, xi *read* Stūpa L.A. x.

P. 237, note 6, l. 4. *Add*: For Dr. Giles's reading of the Chinese characters, see App. *I*, ii. p. 1045.
note 7, l. 2. *Add*: For the reading of the Chinese characters on all these textiles, see App. *I*, ii. p. 1046.

P. 238, l. 5. *Add*: (See also App. *I*, ii. p. 1046).
l. 8. *Add note 9a*: For Dr. Giles's reading of the Chinese characters, see App. *I*, ii. p. 1046.

P. 240, l. 17. *Add*: (see also App. *I*, ii. p. 1045).

P. 247, l. col., l. 40. *Add*: (see App. *I*, ii. p. 1045).
r. col., l. 49. *Add*: (see App. *I*, ii. p. 1045).

P. 248, l. col., l. 38. *Add*: (See App. *I*, ii. p. 1046).

P. 250, l. col., l. 53. *Add*: (See App. *I*, ii. p. 1046).

P. 251, l. col., l. 50. *Add*: (see App. *I*, ii. p. 1046).
r. col., l. 30. *Add*: (see App. *I*, ii. p. 1046).

P. 252, l. col., l. 10. *Add*: For the Chinese character, see App. *I*, ii. p. 1046.

P. 253, r. col., l. 35. *Add*: (see App. *I*, ii. p. 1046).

P. 257, l. col., l. 48. *Add*: (see App. *I*, ii. p. 1046).

P. 265, note 10a. *Add*: Small broken stalks tied up into little bunches on the edges of woollen shrouds have been found with the dead of the graves L.F. 1, L.F. 4, L.Q., L.S. 2, L.S. 3, L.S. 6, all belonging to different indigenous burial-grounds of the Lou-lan area; see i. pp. 268 sq., ii. 736, 740 sq.

Dr. A. B. Rendle, F.R.S., Keeper of Botany, British Museum, to whom specimens from these burial deposits were submitted, in a letter dated August 4, 1925, kindly informed me as follows:

'The specimens (they are all the same) are undoubtedly fragments of the twigs of *Ephedra*, a low-growing shrub with slender green branches devoid of leaves except for a small membranous sheath at the nodes. It is abundant in the drier regions of the Himalayas and Tibet, and generally in Central and Western Asia.

'If you will look up Watt's *Dictionary of Economic Products of India* under Ephedra you will find it identified with the sacred *Homa* of the Parsees. It could hardly have been used as a spice, but contains a bitter principle and according to Dr. Dymock "The Parsi priests say that it never decays".'

The identification of the plant found among the burial deposits of the autochthonous population of Lou-lan, with the *Ephedra*, used in Zoroastrian ritual practice of the present day as the representative of the ancient *Haoma*, opens up a question of distinct antiquarian interest. It reaches, however, too far to be discussed in this note, and I must leave its examination for another place.

P. 267, l. 36. *After* grave-pits *add* (Fig. 159).

P. 269, r. col., l. 15. *After* L.F. 3. 03 *add* L.S. 2. 05.

P. 290, l. 42. *After* arrow-heads *add* (L.J. 01).

P. 292, l. 16. *For* February 15th *read* February 21st.

P. 366, l. 35. *For* T. XXXVII. b. 01 *read* T. XXXVII. a. 1.

P. 394, ll. 12–15. *For* T. XLIII *read* T. XLIII. k.

P. 421, r. col., l. 30. *Add*: Mr. H. Balfour, Curator of the Pitt-Rivers Museum, Oxford, in a letter dated November 1, 1925, has kindly furnished me with the following note on the use of the trap of which this spiked wheel formed a part, and with a sketch illustrating it.

'The principle is this: The spiked wheel is laid over a hole in the ground and concealed. A noose is placed over the wheel, the loop of the noose lying over the ring of the wheel; the other end of the noose-cord being attached either to a tree, or to a log. An animal placing its foot upon the wheel causes the spikes to give way, the leg of the beast sinking through into the hole in the ground. The spikes hold firmly upon the beast's leg, and in endeavouring to shake off the painful, spiky wheel, the noose (which is supported by the wheel) is caused to draw tight and so the beast is held fast—or has to trail a log along as it runs off. Thus the wheel is not in itself the trap, but it functions as an accessory in securing that the noose shall operate, the noose being the real trap.'

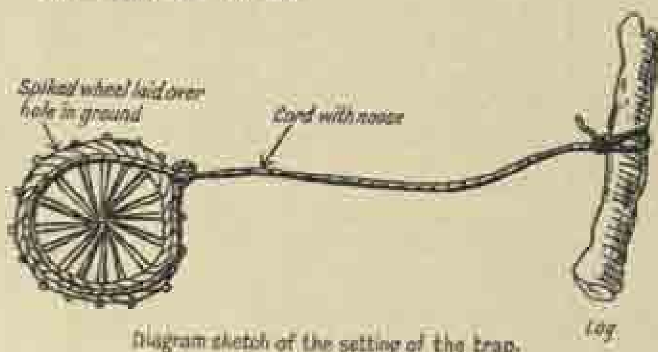


Diagram sketch of the setting of the trap.

Mr. Balfour at the same time informed me that types of the wheel-trap above described are still used in different parts of Africa and Asia, including India. A note on those types and their geographical distribution was being prepared by him for publication.

P. 440, l. 40. *For* Prof. von Lecoq *read* Prof. von Le Coq, *and so elsewhere*.

P. 481, l. 31. *Add note 15b*: For some of the Mongol MS. remains, see now Prof. von Le Coq's notes in App. *K*, ii. p. 1049.

P. 492, r. col., l. 43. *For* Bhīmasparśa *read* Bhūmisparśa.

P. 499, l. col., l. 3 from below. *For* Bhīmasparśa *read* Bhūmisparśa.

P. 541, note 11, l. 1. *For* Hermann *read* Herrmann.

P. 560, note 1, r. col., l. 8. *For* Yā-mên *read* Ya-mên.

P. 576, note 23a. *Add*: For M. Maspero's corrected genealogy of the *Ch'ü* dynasty, see now his Appendix *A*, ii. pp. 986 sq.

P. 591, l. 44. *For* App. *R read* App. *P*.

P. 595, l. 32. *For* Kōtek-shahri *read* Kötek-shahri.

P. 706, r. col., l. 22. *Omit*: Pl. LXXVII.

P. 708, l. col., l. 10. *For* Pl. CXXXI *read* Pl. CXXVII.

P. 736, l. 6. *Add*: See note 10a to p. 265, also p. xxi.

P. 743, l. 14. *Add note 1b*: For details of Afrāz-gul's route from north of Āltmish-bulak to Chainut-köl and thence to the Kuruk-daryā, see now *Map of the Lop Desert*, in vol. iv.

P. 868, l. 3. *For* Fig. 402 *read* Fig. 403.
l. 4. *For* Fig. 403 *read* Fig. 402.

P. 885, l. 13. *For* largest *read* largish.

P. 886, note 2, l. col., l. 19. *Add*: An early form of the name *Rōshān* is, possibly, preserved in a notice quoted from Ktesias, 'Ῥωξανάκη· ἡ πόλις ἔνθα Σάκαι τὸ βασίλειον ἦν (Nikolaos of Damascus); 'Ῥοξομανία· πόλις Σακῶν (Stephanus Byz.), as suggested by Tomaschek, 'Sogdiana', *Sitzungsberichte der K. Akademie der Wissensch. Philos.-histor. Klasse*, Wien, 1877; p. 113.
note 2, r. col., l. 17. *For* Wörterbuch *read* Namenbuch.

P. 888, l. 17. *After* 14,500 feet *add* (Fig. 394).

P. 899, l. 25. *For* Pl. XVIII *read* Pl. CXVIII.
Add: See also M. Hobson's Appendix *D*, ii. p. 1016.

P. 900, l. 3. *For* (Pl. XVIII) *read* (Pl. CXVIII).

P. 927, l. 3. *Add*: With reference to this ribbed pottery Mr. F. Ll. Griffith, Professor of and Reader in Egyptology, Oxford, kindly informed me that in Egypt the occurrence of ceramic ware of this type is recognized as a sign of late Roman and Byzantine times, extending into the Arab period; cf. Petrie, *Ehnasya*, 1904, ch. VII, VIII; Pl. XXX sqq.

P. 931, note 2. *Add*: According to observations recorded by Sir Henry McMahon, *Geogr. J.*, 1906, xxviii, p. 217, the volume of water carried by the Helmand varies from 2,000 to 70,000 cubic feet per second in normal years, while a volume of as much as 700,000 cubic feet has been estimated in abnormal years.

P. 1028, l. col., l. 10. *For* L.M. II. ii. 08 *read* L.M. II. ii. 08. a.

P. 1031, l. col., l. 1. *For* L.M. II. ii. 09 *read* L.M. II. ii. 09. a.

P. 1050, l. 5. *For* FRANKE *read* FRANCKE.

LIST OF ABBREVIATED TITLES

ANDREWS, *Chin. Fig. Silks* . .	Ancient Chinese Figured Silks, excavated by Sir Aurel Stein at ruined sites of Central Asia. Drawn and described by F. H. Andrews. Reprinted from 'The Burlington Magazine', July–Sept., 1920. London, B. Quaritch, 1920.
BEAL, *Si-yu-ki*	Si-yu-ki. Buddhist records of the Western world, translated from the Chinese of Hiuen Tsiang (A.D. 629). By Samuel Beal, in two volumes. London, Trübner & Co., 1884.
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BRETSCHNEIDER, *Mediaeval Researches*	Medieval Researches from Eastern Asiatic sources. Fragments towards the knowledge of the geography and history of Central and Western Asia from the 13th to the 17th century, &c. By E. Bretschneider. 2 vols. London, Trübner, 1888.
BUSHELL, *The Hsi-hsia dynasty of Tangut.*	The Hsi Hsia dynasty of Tangut, their money and peculiar script. By S. W. Bushell. Journal of the China Branch of the R. Asiatic Society, xxx, pp. 142–60. Shanghai, 1899.
CHAVANNES, *Dix Inscriptions* . .	Dix inscriptions chinoises de l'Asie centrale d'après les estampages de M. Ch.-E. Bonin. Paris, 1902. Reprinted from 'Mémoires présentés par divers savants à l'Académie des Inscriptions et Belles-Lettres', 1re série, tome xi, IIe partie.
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CHAVANNES, *Heou Han Chou* . .	Les pays d'Occident d'après le Heou Han Chou, par Édouard Chavannes. 'T'oung pao', série II, vol. viii, pp. 149–234. Leiden, Brill, 1907.
CHAVANNES, *Mission archéologique* .	Édouard Chavannes. Mission archéologique dans la Chine septentrionale. Planches, parties I, II, 1909. Tome I, première partie, 1913; deuxième partie, 1915. Paris, Leroux.
CHAVANNES, *Turcs occid.* . .	Documents sur les Tou-kiue (Turcs) occidentaux. Recueillis et commentés par Édouard Chavannes, Membre de l'Institut, professeur au Collège de France, avec une carte. Saint-Pétersbourg, Académie Impériale des Sciences, 1903.
CHAVANNES, *Notes additionnelles* .	Notes additionnelles sur les Tou-kiue (Turcs) occidentaux. Par Édouard Chavannes. 'T'oung-pao,' série II, vol. v, pp. 1–110. Leiden, Brill, 1904.
CHAVANNES, *Pays d'Occident* . .	Les pays d'Occident d'après le Wei lio, par Édouard Chavannes. 'T'oung-pao,' série II, vol. vi, pp. 521–71. Leiden, Brill, 1905.
CHAVANNES, *Trois généraux chinois* .	Trois généraux chinois de la dynastie des Han orientaux, par Édouard Chavannes. 'T'oung-pao,' série II, vol. vii, pp. 210–69. Leiden, Brill, 1906.
CHAVANNES, *Voyage de Song Yun* .	Voyage de Song Yun dans l'Udyâna et le Gandhâra (518–22 P.C.). Traduit par M. E. Chavannes, Membre de l'Institut. Extrait du Bulletin de l'École Française d'Extrême-Orient, juillet–septembre, 1903. Hanoi, F. H. Schneider, 1903.
CHAVANNES-LÉVI, *L'itinéraire d'Ou-k'ong.*	Voyages des pèlerins Bouddhistes. L'itinéraire d'Ou-k'ong (751–90). Traduit et annoté par MM. Sylvain Lévi et Ed. Chavannes. Extrait du Journal Asiatique (sept.–oct. 1895). Paris, Imprimerie Nationale, 1895.
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FORSYTH, *Yarkand Mission Report*	Report of a Mission to Yarkand in 1873, under command of Sir T. D. Forsyth, Bengal Civil Service. With historical and geographical information regarding the possessions of the Ameer of Yarkand. Calcutta, Foreign Department Press, 1875.
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FUTTERER, *Wüste Gobi*	Geographische Skizze der Wüste Gobi zwischen Hami und Su-tschou. Von Prof. K. Futterer. Petermanns Mittheilungen, Ergänzungsheft 139. Gotha, 1902.
GEIGER, *Pamir-Gebiete*	Die Pamir-Gebiete. Von Dr. W. Geiger. Geographische Abhandlungen, herausgegeben von Dr. A. Penck, Bd. II, Heft 1. Wien, 1887.
GRENARD, *Mission Dutreuil de Rhins*	Dutreuil de Rhins (J. L.). Mission scientifique dans la haute Asie, 1890–5. Vols. I–III. Deuxième et troisième parties, par F. Grenard. Paris, 1897–8.
GRIERSON, *Ishkāshmī*	Ishkāshmī, Zebakī, and Yāzghulāmī. An account of three Eranian dialects. By Sir G. A. Grierson. London, R. Asiatic Society, 1920.
GRIERSON, *Piśāca Languages*	The Piśāca Languages of North-Western India. By Sir George Grierson. London, R. Asiatic Society, 1906.
GROOT, *Hunnen*	Die Hunnen der vorchristlichen Zeit. Von J. J. M. de Groot. Chinesische Urkunden zur Geschichte Asiens, H. 1. Berlin, 1921.
GROOT, *Religious System*	The Religious System of China . . . its ancient forms, evolution, history and present aspect, &c. By J. J. M. de Groot. Leyden, 1892, &c.
GRÜNWEDEL, *Altbuddh. Kultstätten*	Altbuddhistische Kultstätten in Chinesisch-Turkistan. Von Albert Grünwedel. Berlin, Reimer, 1912.
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GRÜNWEDEL, *Idikutschari*	Bericht über archaeologische Arbeiten in Idikutschari und Umgebung im Winter 1902–3. Von A. Grünwedel. Abhandlungen der philosoph.-philolog. Klasse der k. Bayer. Akademie der Wissenschaften, Band xxiv, Abt. I. München, 1906.
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HEDIN, *Central Asia*	Scientific results of a journey in Central Asia, 1899–1902. By Sven Hedin. Six vols. Stockholm, 1904–7.
HEDIN, *Central Asia and Tibet*	Central Asia and Tibet towards the holy city of Lassa. By Sven Hedin. London, 1903.
HEDIN, *Reisen in Z.-A.*	Die geographisch-wissenschaftlichen Ergebnisse meiner Reisen in Zentralasien, 1894–1897, von Dr. Sven Hedin. Ergänzungsheft No. 131 zu 'Petermanns Mitteilungen'. Gotha, Justus Perthes, 1900.
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JULIEN, *Mémoires*	Mémoires sur les contrées occidentales, traduits du sanscrit en chinois, en l'an 648, par Hiouen-Thsang, et du chinois en français par M. Stanislas Julien. Vols. I, II. Paris, 1857–8.

JULIEN, *Vie*	Histoire de la vie de Hiouen-Thsang et de ses voyages dans l'Inde, depuis l'an 629 jusqu'en 645, par Hoei-li Yen-Thsong; suivie de documents et d'éclaircissements géographiques tirés de la relation originale de Hiouen-Thsang; traduite du chinois par Stanislas Julien. Paris, 1853.
KLEMENTZ, *Nachrichten über Turfan*	Turfan und seine Alterthümer. Von D. Klementz. Nachrichten über die von der Kais. Akademie der Wissenschaften zu St. Petersburg im Jahre 1898 ausgerüstete Expedition nach Turfan. Heft I. St. Petersburg, 1899.
LE COQ, *Bilderatlas*	Bilderatlas zur Kunst und Kulturgeschichte Mittel-Asiens. Von A. von Le Coq. Berlin, 1925.
LE COQ, *Buddhistische Spätantike*	Die Buddhistische Spätantike in Mittel-Asien. Von A. von Le Coq: I–V. Berlin, 1923–6.
LE COQ, *Chotscho*	Königlich Preussische Turfan-Expedition. Facsimile-Wiedergaben der wichtigeren Funde der ersten Königlich Preussischen Expedition nach Turfan in Ost-Turkistan. Von A. von Le Coq. Berlin, 1913, &c.
LEGGE, *Fâ-hien*	A record of Buddhist kingdoms, being an account by the Chinese monk Fâ-hien of his travels in India and Ceylon (A. D. 399–414) in search of the Buddhist books of discipline. Translated and annotated, with a Corean recension of the Chinese text, by James Legge. Oxford, Clarendon Press, 1886.
MARQUART, *Ērānšahr*	Ērānšahr nach der Geographie des PS. Moses Xorenac'i. Mit historisch-kritischem Kommentar und historischen und topographischen Excursen von Dr. J. Marquart. Abhandlungen der k. Gesellschaft der Wissenschaften zu Göttingen, Philologisch-historische Klasse, Neue Folge, Band iii, 2. Berlin, 1901.
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OLUFSEN, *Unknown Pamirs*	Through the Unknown Pamirs. The second Danish Pamir Expedition, 1898–9. By A. F. O. H. Olufsen. London, 1904.
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STEIN, *Ancient Khotan*	Ancient Khotan. Detailed Report of archaeological explorations in Chinese Turkestan carried out and described under the orders of H.M. Indian Government by M. Aurel Stein. Vols. I, II. Oxford, Clarendon Press, 1907.
STEIN, *Archaeological Survey, Frontier Circle, 1912.*	Annual Report of the Archaeological Survey of India, Frontier Circle, 1911–12. By Sir Aurel Stein. Peshawar, Government Press, 1912.
STEIN, *Desert Cathay*	Ruins of Desert Cathay. Personal Narrative of explorations in Central Asia and Westernmost China. By M. Aurel Stein. Vols. I, II. London, Macmillan, 1912.
STEIN, *Memoir on Maps*	Memoir on Maps of Chinese Turkistan and Kansu from the surveys made during Sir Aurel Stein's Explorations, 1900–1, 1906–8, 1913–15. By Sir Aurel Stein. With Appendices by Major K. Mason and Dr. J. de Graaff Hunter. Trigonometrical Survey Office, Dehra Dun. 1923.
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STEIN, *Serindia*	Serindia. Detailed Report of explorations in Central Asia and Westernmost China carried out and described under the orders of H.M. Indian Government by Aurel Stein. Vols. I–V. Oxford, Clarendon Press, 1921.

STEIN, *Thousand Buddhas*	Ancient Buddhist paintings from the Caves of the Thousand Buddhas on the western-most border of China. Recovered and described by Aurel Stein with an Introductory Essay of Laurence Binyon. London, Quaritch, 1921.
TATE, *Seistan*	Seistan, a Memoir on the History, Topography, Ruins, and People of the Country. By G. P. Tate. Calcutta, Office of the Superintendent of Government Printing, 1910.
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WOOD, *Source of the Oxus*	A journey to the source of the River Oxus. By Captain John Wood. New edition, edited by his son. With an essay on the geography of the valley of the Oxus, by Colonel Henry Yule. London, Murray, 1872.
WYLIE, *Notes on the Western Regions*	Notes on the Western Regions. Translated from the 'Tsëen Han Shoo', Book 96, Parts 1, 2. By A. Wylie. Journal of the Anthropological Institute of Great Britain and Ireland, 1880, vol. x. pp. 20–73; 1881, vol. xi. pp. 83–115.
YULE, *Marco Polo*	The Book of Ser Marco Polo the Venetian concerning the kingdoms and marvels of the East. Translated and edited, with notes, by Colonel Sir Henry Yule, R.E., C.B., K.C.S.I., corr. Inst. de France. Third edition, revised throughout in the light of recent discoveries by Henri Cordier; with a memoir of Henry Yule by his daughter Amy Frances Yule. Vols. I, II. London, Murray, 1903.
YULE-CORDIER, *Cathay*	Cathay and the Way thither; being a collection of mediaeval notices of China. Translated and edited by Colonel Sir Henry Yule. New edition, revised throughout in the light of recent discoveries by Henri Cordier. Vols. I–IV. London, Hakluyt Society, 1915–16.

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CHAPTER I

THROUGH CHILĀS, DARĒL, AND TANGĪR

Section I.—FROM KASHMĪR TO CHILĀS

The plan of my third Central-Asian journey had taken definite shape during my summer in Kashmīr in 1912, and I had ever since been eagerly looking out for a new route to follow across the great mountain barriers northward to the border of Chinese Turkestān on the Pāmīrs. Geographical and antiquarian interests combined to make me anxious to visit fresh ground in the Hindukush region within the short time available as I crossed the mountains. It seemed difficult to find such a route; for in the initial portions of my previous journeys I had exhausted the only apparent alternatives offered by the Chitrāl and Hunza valleys leading to practicable crossings of the main Hindukush range. Nor did the devious route through Ladākh and across the Kara-koram pass offer any attraction, as I had seen it on my return journey in 1908. But chance proved favourable at the start, and unexpectedly opened for me the new approach to the goal that I was seeking. Choice of route across mountains.

The exploration of the important valleys of Darēl and Tangīr descending to the Indus from the north some distance below Chilās had long attracted my attention on archaeological grounds. In the accounts of our old guides, the Chinese Buddhist pilgrims, Darēl or *Ta-li-lo* receives prominent mention, partly because there passed through it a route which led from the uppermost Oxus to the Indus and the sacred sites of the Indian North-West, and partly on account of a famous Buddhist sanctuary it once contained. Though territory under British political control adjoins these tracts both on the east and north, they had never been visited by any European, and remained practically *terra incognita*; for access to them was effectively closed by the disturbed political conditions of the local Dard communities, broken up, as throughout the Indus 'Kōhistān', into a series of independent small republics; and also by the fanatical spirit still common among these comparatively recent converts to Islām. Planned exploration of Darēl.

But during recent years Rāja Pakhtūn Wālī, a scion of the Khushwaqt family and son of Mīr Wālī, once ruler of Yāsīn, had after an adventurous career succeeded in making himself master of Tangīr, which he had first entered in 1895 as a refugee from Chitrāl. Possessed of a strong character and great power of unscrupulous intrigue, he had by 1909 extended his sway over Darēl and also over some of the minor 'republics' south of the Indus. Having thus built up, in true *condottiere* fashion, what in the Hindukush region might well count as a new kingdom of his own, he realized the need of consolidating his rule. This and the desire of securing outside support for his children's eventual succession induced him gradually to drop the attitude of hostility to British influence that he had previously affected in his dealings with the fanatical 'Kōhistānī' tribes, until in the early spring of 1913 he took direct steps to seek friendly relations with the Gilgit Political Agency. Rise of Pakhtūn Wālī.

As soon as I learned of the opportune chance thus offered I decided to avail myself of it in planning the new route to the Pāmīrs that I so eagerly desired. I had previously wished to lay my itinerary through Chilās and Yāsīn, territories of distinct geographical and historical interest Arrangements with ruler of Darēl.

B

not previously touched by me. Darēl and Tangīr are ground lying on the most direct route between them, and thus a visit to this as yet unexplored area was possible without too great a sacrifice of time, an important consideration in my programme. The arrangements with Rāja Pakhtūn Wālī for my contemplated visit needed cautious preparation and diplomatic handling. But the kind interest shown in my plan by the Honourable (now Sir) Stuart Fraser, then Resident in Kashmīr, was of great assistance, and finally his effective help, given with the assent of the Foreign Department of the Government of India, secured for me the chief's permission to visit his territories. The conditions he thought fit to attach to it were obviously meant in the first place to safeguard his political interests; but their acceptance was made all the more expedient by the fact that incidentally they appeared also conducive to my safety among his newly won but by no means yet resigned subjects.

Joined by surveyors.

Final sanction of my expedition reached me only towards the close of May, 1913, and owing to the time occupied by the many practical preparations which could not be undertaken before, and by the negotiations which had to be carried on with Rāja Pakhtūn Wālī through the kind offices of Major (now Colonel) A. D. Macpherson, Political Agent at Gilgit, I was unable to leave my Kashmīr base at Srinagar until the last day of July. During the preceding week I had been joined there by my trusted old travel companion, Rai Bahādur Lāl Singh, Sub-Assistant Superintendent of the Survey of India, and a second surveyor, Muḥammad Yāqūb Khān. Colonel Sir Sidney Burrard, Surveyor-General of India, had kindly placed their services at my disposal for the proposed geographical work of my journey, together with all necessary surveying equipment and a grant to cover their travelling expenses.

Other Indian assistants.

At Srinagar there joined me also two other Indian assistants, who, though new to Central-Asian travel, proved both excellent selections for their respective spheres of work. In Naik Shamsuddīn (since a Jamādār), of the First K.G.O. Sappers and Miners, whom Colonel Tylden-Patterson, R.E., commanding that distinguished corps, had chosen for me, I found a most helpful 'handy man' for all work requiring technical skill. The other assistant, Miān Afrāz-gul Khān, a Pathān of the saintly Kāka-khēl clan and a sepoy of the Khyber Rifles, was my own choice, and the record of our labours will show how fortunate it was. Originally a schoolmaster on the Peshawar border, he had soon after his enlistment in that famous Frontier Militia Corps been noticed for his topographical sense. After he had passed with distinction through the Military Surveyors' Class at Roorkee, he was permitted by the late Sir George Roos-Keppel, Chief Commissioner of the North-West Frontier Province and Honorary Colonel of the Regiment, to help me as temporary draughtsman and surveyor at the excavations carried out by me in the spring of 1912 at the site of Sahri-bahlōl in the Peshawar valley. In this and in subsequent work on the plans illustrating my *Serindia* he gave proof of marked and varied ability. When in addition I became aware of his energy and genuine love of adventure, I felt assured of his special fitness to render help as an assistant surveyor. Ample experience was also to prove the great value of his assistance in archaeological work, an assistance often given under most trying conditions.

Start from Kashmīr.

On the 31st of July, 1913, we left Srinagar and proceeding by boat down that ancient highway of Kashmīr, the Jhelam or Vyath (Skr. *Vitastā*, Hydaspes), reached next day the little port of Bandipur on the Volur lake, the *Mahāpadmasaras* of Kashmīr Sanskrit texts. From there the bulk of our baggage was dispatched under the care of Muḥammad Yāqūb Khān and Naik Shamsuddīn by the Gilgit Transport Road to await us in Hunza.[1] I myself with R. B. Lāl Singh

[1] For an account of this modern road, well-engineered and fit for mules and camels, by which are transported most of the annual supplies required for the Imperial Service troops garrisoning Gilgit and the other stations of the Agency, cf. my *Ruins of Khotan*, pp. 12 sqq.

and Afrāz-gul, taking only the minimum of indispensable baggage, set out on August 2nd by the most direct route connecting Kashmīr with Chilās, our immediate goal. During one pleasant march it took us north-westwards through the fertile forest-girt Lōlāb, one of the most attractive of the many side valleys of Kashmīr. Then striking almost due north we proceeded into the drainage area of the Kishangangā. Passing through its deep-cut gorges (Fig. 1) and ascending the valley of Kēl (Fig. 13), we crossed after six more marches the watershed towards the Indus by the Barai pass (14,250 ft. above sea-level). Here we reached the border of Chilās territory, and two more days of hard marching, one leading across the snowy Fasat Pass (15,200 ft.), carried us down, through increasingly barren ravines (Fig. 3), to the fort and village of Chilās by the Indus. Bad weather had pursued us from the time we first entered the mountains above the Lōlāb right up to the Indus watershed, and had added to the difficulties of tracks, in many parts of which the loads had to be man-handled to enable our baggage animals to pass.

Historical interest of route.

The physical features of the route as far as the watershed do not call for a detailed description here; for since the occupation of Chilās in 1893 it has been fully surveyed, and some account of it may be found in various route books and gazetteers of Kashmīr territory.[2] But the ground has an antiquarian interest that rewarded me for the fatigues undergone and that deserves to be noted here. I have discussed at length, in *Ancient Khotan*, the interesting Chinese records of the military operations which led to the temporary occupation of 'Great and Little P'o-lü', i.e. Gilgit and Yāsīn, by Chinese imperial forces during the first half of the seventh century A.D.[3] I have there fully explained the significant fact, which we learn from a memorial addressed in A.D. 749 by the ruler of T'u-ho-lo or Tokhāristān to the Imperial Court, that the Chinese garrison placed in the territory of P'o-lü after Kao Hsien-chih's famous expedition of A.D. 747, completely depended for its maintenance upon food supplies imported from Kashmīr. As I pointed out, 'the difficulties which the letter of the T'u-ho-lo ruler so graphically represents . . . are exactly those with which the Kashmīr rulers [in Sikh and Dōgrā times], and in more recent years the military authorities of the Indian Government, have had to contend in their occupation of Gilgit'.[4]

Attack from Chitrāl, A.D. 749.

Now the direct occasion for the memorial of the Tokhāristān prince was an attempt made by the king of Chieh-shuai, a territory adjoining Tokhāristān on the south-east, to cut off the route by which the Chinese in P'o-lü drew their supplies from Kashmīr. The attempt was instigated by the Tibetans, who were then threatening the Chinese dominion in Eastern Turkestān, and the Chinese occupation of Yāsīn and Gilgit was especially designed to prevent the Tibetans from joining hands with the Arabs on the Oxus.[5] As regards the name Chieh-shuai 朅帥, found also in other texts with slight variations as Chieh-shih 朅師 or in the abbreviated form Chieh 劫,

[2] For recent surveys of the ground traversed by this route, and by others leading farther west from the Kishangangā and the Kunhār to Chilās that will be mentioned below, see Survey of India maps 43 E, F, I, J; for revised accounts of routes, Major K. Mason's *Routes in Western Himālaya*, pp. 82–90.

[3] See *Ancient Khotan*, i. pp. 11 sqq. For the translations and notes by which M. Chavannes first rendered these important historical notices in the T'ang Annals and other Chinese records fully accessible to research, cf. his *Documents sur les Tou-kiue occidentaux*, pp. 166 sq., 214 sq., 296.

[4] Cf. *Ancient Khotan*, i. p. 12.

[5] In the document reproduced by M. Chavannes from the *Ts'ê fu yüan kuei*, *Turcs occid.*, p. 214, we are told that Chieh-shuai, relying on the protection of its high mountains, had allied itself with the Tibetans. Its chief 'knows that the territory of P'o-lü is limited, its population dense, that the cultivated area is small, and consequently when garrison troops are placed there, the supplies fail. It then becomes necessary to purchase salt and rice in Kashmīr (*Ku-shih-mi*), and it is thus that the difficulty is met. Now the traders' caravans must, on going and coming back, all pass by the kingdom of Chieh-shuai; its king has therefore accepted the presents offered by the Tibetans, who claimed to establish a stronghold in his territory with a view to getting possession of the important route that leads into P'o-lü. Since Kao Hsien-chih opened up P'o-lü, there have been 3,000 more troops there, and P'o-lü has been crushed by this. The king of Chieh-shuai, in agreement with the Tibetans, has taken advantage of the exhausted condition of P'o-lü and decided to invade it.'

I believe that I have conclusively proved in *Ancient Khotan* that it designates Chitrāl, being probably intended to reproduce *Kāshkār*, the old alternative name of that territory.[6]

Menace to 'Gilgit Road' from Chilās.

In the same work I emphasized the obvious geographical fact that Chilās was the point at which alone the line of communication from Kashmīr to Gilgit and Yāsīn was liable to serious interference from the west, i. e. the Chitrāl side.[7] A glance at the map will explain this, and what we know of the modern history of these mountain tracts points to the same conclusion ; for it supplies abundant evidence of the danger to which the 'Gilgit Road' of the Sikhs and Dōgrās was exposed, right up to the middle of the last century, from predatory raids of the Chilās people.[8] These raids ceased only after Mahārāja Gulāb Singh's troops in 1851, operating in part by the Barai pass, had succeeded in invading Chilās and temporarily reducing its chief stronghold. But the Chilāsīs soon regained independence, and their turbulent disposition, with the support they drew from the other Dard republics farther down the Indus, remained a source of danger to the 'Gilgit Road'. This menace was finally removed only in 1893, when after some serious fighting the territory was occupied and a garrison of Imperial Service troops permanently established in Chilās Fort.

Supplies from Kashmīr through Chilās.

These considerations had already led me to locate in Chilās the danger point referred to by the Chinese record of A. D. 749. The observations I was able to make during my visit to Chilās have fully confirmed me in this view, but with a modification as regards the actual geographical position of the route in question. It appears to me now very probable that the route or routes by which those indispensable supplies from Kashmīr reached the Chinese Imperial garrisons in Gilgit and Yāsīn did not lie, as assumed in *Ancient Khotan*, along the present 'Gilgit Road' across Gurēz, the Burzil pass and Astōr, but led direct through Chilās. My reasons are the following. A reference to any map of the territories between Kashmīr and the Hindukush will show that the line followed by the present 'Gilgit Road' from Kashmīr to the Indus at Būnji is far longer than the line across the Barai pass to Chilās.[9] Whereas the distance as reckoned in official route records between Bandipur on the Volur lake and Būnji is 158 miles, the same from Bandipur to Chilās, as tested on the route I followed, is only about 116 miles. It would be still less if instead of proceeding across the Fasat pass to Chilās Fort the traveller were to follow the stream draining the Barai pass on the north straight down to the Indus at Būnar.

Advantages of Chilās route.

It deserves to be noted also that, even before the improvements referred to below, the whole of the route across the Barai Pass, though difficult in places, was passable for laden animals, and that ample grazing is found along its whole length. It was the absence of grazing almost throughout Astōr that had made the use of the Bandipur–Burzil–Būnji route for laden transport practically impossible until the 'Gilgit Road', a feat of modern engineering, was constructed and elaborate commissariat arrangements made under British control.[10] Though some 700 feet higher, the Barai pass is not closed by snow appreciably longer than the Burzil, and the pass above Matsil which has previously to be crossed on the watershed between Kashmīr proper and the Kishangangā valley is certainly easier and less exposed to danger from avalanches and snowdrifts than the Trāgbal pass which corresponds to it on the 'Gilgit Road'.

[6] See *Ancient Khotan*, i. pp. 13 sqq. ; also *Serindia*, i. pp. 29 sq.

[7] Cf. *Ancient Khotan*, i. pp. 16 sq.

[8] For interesting accounts of such Chilāsī raids, which being made largely for the purpose of capturing slaves caused depopulation in the Astōr valley, but were extended also to the Kishangangā and even as far as Skardo and Kashmīr, cf. Drew, *Jummoo and Kashmir*, pp. 398, 404 sq. ; Biddulph, *Hindoo Koosh*, pp. 15 sq. ; Vigne, *Travels in Kashmir*, ii. p. 301.

[9] As the territory of Chilās was inaccessible for survey work prior to 1893, the Atlas of India Sheets and other earlier maps offer no help for this comparison. For convenient reference, see e. g. Sheet No. 43 of the Survey of India 1 : 1,000,000 Series, or Sheet No. 3 of the Northern Trans-frontier Series.

[10] Cf. for some account of the 'Gilgit Road' and its traffic arrangements, *Ruins of Khotan*, pp. 12 sqq.

Later change to 'Gilgit Road'.

The topographical facts just explained justify the conclusion that the choice of the circuitous route represented by the 'Gilgit Road' was due mainly, if not solely, to the political and military conditions prevailing at the time when the Sikhs, in 1842, first extended their conquest to Gilgit. The story has been recorded by Mr. Drew with his usual accuracy and need not be repeated here.[11] It makes it quite clear that the Sikhs took this line for their advance because the Dard Rāja of Astōr had long since been tributary to them, whereas the tribal communities of Chilās and the adjoining valleys of the Indus Kōhistān maintained a sturdy independence and were foes whom it was wise to leave alone. Of the political conditions in these tracts during earlier times we have no direct historical information. But from the indications I shall have to discuss below as regards Darēl, and from the Chilās tradition that the whole of Shinkārī or the Dard portion of the Indus Kōhistān was under the rule of one Rāja during pre-Muhammadan times,[12] it seems safe to conclude that the region comprising Chilās and the Kōhistān valleys westwards must have been during certain periods far more accessible to peaceful traffic than it has been in recent times.

Routes divided by Nangaparbat massif.

If we turn once more to the map for the physical features that determined the lines of such traffic between Kashmīr and India in the south and that portion of the Hindukush in the north which the Chinese records know by the name of P'o-lü, we cannot fail to realize an important geographical fact. The direct routes available for this intercourse are divided into two distinct and very unequal groups by the huge glacier-clad mountain mass that rises above the Indus valley between Astōr and Chilās and culminates in the grand ice peak of Nangaparbat, 26,620 feet above the sea. To the east of it there is practically only a single line of communication, that which the present 'Gilgit Road' follows across the Burzil pass (13,650 feet), with a branch route over the slightly lower Kamri pass which rejoins it in the main Astōr valley. The few routes from the Kishangangā to be found farther east all lead into Baltistān or Skardo, situated much higher up the Indus.

Easier routes west of Nangaparbat.

To the west of the impassable barrier of the Nangaparbat massif conditions are quite different. Beginning with the Barai pass, which skirts the westernmost spur of Nangaparbat that carries permanent snow, we find quite a series of passes with practicable routes leading from comparatively well-inhabited parts across to the heads of the several valleys constituting Chilās.[13] These routes

[11] Cf. Drew, *Jummoo and Kashmir*, pp. 403, 437 sqq.

[12] See Biddulph, *Hindoo Koosh*, p. 16.

[13] Starting from the east we have first the route up the Kēl valley and across the Barai pass, with a threefold continuation beyond the north foot of the latter at Surugan. One leads straight down the Būnar valley northward to the Indus, as already mentioned, p. 4; the second, followed by myself and found practicable for laden animals, though with difficulty in some places, diverges to the north-west and leads across the Fusat pass into a branch of the Niat valley; the third leads westwards along easy uplands and gives access transversely to every one of the routes as far as the Bābusar pass to be mentioned presently.

Next to the Kēl-Barai route we have that which starts from Shardī, the ancient sanctuary of the goddess Śāradā on the Kishangangā (see my note on *Rājat.* i. 37; vol. II, pp. 279 sqq.) and leads up the considerable stream (known to the Sanskrit tradition of Kashmir as *Sarasvatī*, cf. *Rājat.* i. 37; II. p. 282) that there joins the Kishangangā from the north.

This route crosses the watershed by the Kamakdōri pass (14,120 feet) and thence leads down to the Niat valley by the Biāh Nullah. Its practicability is attested by the official proposal made some time ago to the Kashmir authorities to open it up as a mule road and an alternative line of communication with Chilās. Its convenience for this purpose was previously demonstrated in another fashion by marauding inroads of Chilāsīs, which obliged the Dōgrās, in Mahārāja Gulāb Singh's time, to erect a fort at Shardī for the protection of the valley. In 1891 this danger had not yet disappeared completely, and I found the fort still garrisoned by a small detachment (cf. *Rājat.* II. p. 284).

To the north-west of the Kamakdōri route there branch off at least two, if not three, side valleys connecting Shardī by practicable routes (Jalkhadgali, Purbin, Sarai passes) with the open grassy uplands at the head-waters of the Kāghān valley. Notwithstanding the convergence upon Shardī of these several routes, I doubt whether any of them could ever have claimed the importance of the Barai route as a means of direct communication with the main Kashmīr valley; for the configuration of the mountains to the south and the narrowness of the Kishangangā valley both above and below Shardī make this place more difficult of access than Kēl from Kashmir proper. It is thus for good reasons

are all the easier that the watershed here is approached on the south by easy trough-like uplands curiously resembling small Pāmīrs.[14] The westernmost of these open high valleys is drained by the head-waters of the Kāghān river. On the north it gives access to a succession of Chilās passes, of which the Bābusar pass (13,680 feet) has since 1893 been traversed by a well-made mule road. This connects Chilās through the fairly open valley of the Kunhār or Kāghān river with the fertile British district of Hazāra, and ever since the occupation of Chilās has carried a considerable amount of trade and traffic proceeding to Gilgit and beyond.

Route connecting Chilās with Hazāra.

Hazāra, the ancient Uraśā, appears during the greater part of the pre-Muhammadan period for which we possess historical records as a territory subject to the rulers of Kashmīr.[15] It may hence be safely assumed that this most direct and easiest of all routes connecting Chilās with India must have also been made use of during the times when the Chinese garrisons placed in Gilgit and Yāsīn were maintained by means of supplies from Kashmīr. This assumption is particularly confirmed by the specific reference made to salt in the letter of the Tokhāristān ruler above quoted. This important commodity is not found in Kashmīr. Obviously when Chinese troops had to be supplied with it in Gilgit, it would be imported, just as it is at the present day for the needs of the garrisons in the Gilgit Agency, by the nearest route from the source of supply in the Salt Range, i. e. by the road leading up to the Kāghān river head-waters and thus to Chilās. In the same way rice, too, which parts of Hazāra produce in plenty, may have been imported by this route and not solely from the Kashmīr valley.

Use of Kāghān valley route.

I have already referred to the fact that the Kāghān valley route as well as those leading to Chilās from the Kishangangā were in need of some improvement before they could be conveniently followed by traffic with laden animals. But this in no way militates against their extensive use for transport in earlier times. Natural obstacles on these tracks could easily be overcome by recourse to men as bearers, and we have abundant historical evidence to show that such recourse

that the Barai route has been chosen by the Kashmīr authorities as an alternative line of traffic to Chilās and Gilgit, and that, since my journey, the improvements have been made necessary to convert it into a regular mule road.

Immediately to the west of the Kamakdōri pass we reach the high but open ground resembling the Pāmīrs to which I have already referred. This extends along the Indus–Kishangangā watershed as far as the Lālusar lake at the head of the Kunhār (Kāghān) river, a distance of some 16 miles. From this grassy upland the head-waters of every one of the Chilās streams can be reached by easy passes, which the map Sheet No. 42 of the Northern Trans-frontier Series shows by the names of Balung, Damagāh, Bābusar, Tatabai, Butogāh.

The lowest among them, the Bābusar pass (13,680 feet), is crossed, as already mentioned, by the well-made mule road which gives access from Kāghān and Hazāra and leads down the Thak Nullah to the chief place of Chilās on the Indus. The great advantage offered by this route is that on it there is only a single pass to be faced, offering a very gentle ascent from the south, with plenty of grazing all the way.

[14] My stay near the head-waters of the Kunhār or Kāghān river during the summers of 1904 and 1905 enabled me to gain some personal acquaintance with the peculiar physical aspects of this high ground. It appears to me of distinct interest to note that though the watershed west of the Barai pass as far as the extreme head-waters of the Kunhār falls nowhere appreciably below the 14,000 feet level, and elevations rising to 15,000 feet or more are numerous on the crest line, yet there seem to be no permanent snow-beds along its line. Yet such snow-beds and even small glaciers are to be found farther south, both within the Kunhār and the Kishangangā drainage areas, in connexion with peaks which do not rise much above 14,000 feet. We are, I believe, justified in accounting for this feature of the watershed above Chilās by the climatic fact that, as my personal experience showed, the uppermost portion of the Kunhār valley and of the ranges flanking it lies beyond the limits of the Monsoon rains.

This in turn may be connected with the configuration of the Kunhār valley. It twists sharply in the vicinity of the large village of Kāghān, and the high mountain ridges projecting on either side completely intercept the moisture-laden air currents that the Monsoon brings up from the south. This want of precipitation, whether rain or snow, during the summer months may explain both the absence of permanent deposits of snow or ice on the watershed and the steppe climate of those uplands which to me distinctly recalled the Pāmīrs.

[15] Cf. my notes *Rājat.* v. 217; II. p. 434.

was as general in ancient Kashmīr as it has from necessity remained to the present day in many parts of the mountains right up to the Hindukush watershed.[16]

Gilgit easily reached from Chilās.

It only remains to point out that supplies reaching Chilās from the south could have been carried thence without serious difficulty, as they are to-day, to the central portion of what is now Gilgit, by the route leading up the Indus valley to Būnji and thence up the Gilgit river. As this route throughout runs over low ground in the valleys, between about 3,600 and 4,400 feet above sea-level, it is, of course, open to traffic throughout the year. But in view of the great summer heat experienced in the confined valleys, it is probable that, in the days when human transport alone was practicable, the far shorter line was preferred that leads straight to the north of Chilās by the Kinar-gāh valley and after crossing two high but easy passes strikes the cultivated central tract of Gilgit a few miles below the present fort and station.[17]

Section II.—CHILĀS AND ITS PAST

Alberūnī's notice of Chilās.

Apart from the Chinese notice relating to a route through Chilās which has just been discussed I am able to trace only one early reference to the territory. It is to be found in Alberūnī's *India* and offers some interest, cursory as the passage is. In his account of Kashmīr, the importance and value of which I have had occasion fully to explain elsewhere,[1] the great Muhammadan scholar tells us that passing into the open plain of the Kashmīr valley from the entrance gorge of Bārāmūla, 'you have for a march of two more days on your left the mountains of Bolor and Shamīlān. Turkish tribes who are called *Bhattavaryān*. Their king has the title of *Bhatta-Shāh*. Their towns are Gilgit, Aswira and Shiltās, and their language is the Turkish. Kashmīr suffers much from their inroads.'[2] In the three localities mentioned as the chief seats of these tribes it is impossible to mistake the present Gilgit, Hasōra (Astōr) and Chilās. Nor can it reasonably be doubted that whatever caused Alberūnī to describe their inhabitants as 'Turks', he means by them the same Dard tribes whom we know from plentiful evidence to have held this region ever since classical times.[3] Considering that Kashmīr was wholly inaccessible to Alberūnī and the regions beyond, if possible, even more so, we may well feel surprise at his information about those distant mountain tracts being as exact as it proves to be. I have indicated elsewhere that the explanation of this detailed knowledge lies probably in the fact that Alberūnī employed Kashmirian Paṇḍits for the Indian studies he carried on during his long stay at Ghazna and in the Punjāb (A. D. 1017–30).[4]

'The mountains of Bolor and Shamīlān.'

Local knowledge derived from such Kashmirian informants obviously accounts for the perfectly correct statement that the traveller entering the open Kashmīr valley from the gorge of

[16] Regarding the system of forced carriage of loads, included in modern Kashmīr under the general term of *bēgār*, cf. the passages discussed in my notes on *Rājat.* v. 172–4; viii. 2509–13. It is interesting to note that the last-named passage specially refers to the forced carriage employed for military transport on an expedition directed to the Kishangangā valley about Shardī in A. D. 1144. For other references, including one by Alberūnī, see my note, *Rājat.* II. p. 361, note 50.

[17] The road from Chilās Fort to Gilgit via Būnji, now made practicable for camel transport, is reckoned at 89 miles, while the distance up the Kinar-gāh Nullah and across the Kinijut and Khomar passes is estimated at 60 miles.

For the route leading up the Indus see Northern Trans-frontier map Sheet 3 NE.; Mason, *Routes in Western Himālaya*, pp. 86 sq.

[1] See *Rājat.* II. pp. 360 sqq.; also *Memoir on the ancient geography of Kaśmīr*, pp. 21 sqq.

[2] See *Alberūnī's India*, transl. by Sachau, i. p. 207.

[3] Cf. my notes, *Rājat.* i. 312–16; II. p. 431, for the numerous passages of Kalhaṇa's chronicle where the tribes occupying the mountain tracts to the north of Kashmīr are referred to by the Skr. name of *Darad* or *Dārada*; also for references to ancient notices of the same ethnic designation in that region.

That Alberūnī uses here the term 'Turk' in the same vague way as when he speaks elsewhere e.g. of the 'Turks of Tibet', meaning the undoubtedly Tibetan population adjoining Kashmīr on the east, has been pointed out by me in *Rājat.* II. p. 363, note 64.

[4] See *Rājat.* II. pp. 359 sq.

Bārāmūla, the ancient western 'Gate' of the kingdom, has, for the two marches leading to the capital, on his 'left the mountains of Bolor and Shamīlān'. The latter local name can, it is true, no longer be traced. But there can be no doubt whatsoever that it was applied by Alberūnī's informants to the mountains south of Chilās and probably also Astōr; for in a preceding passage he speaks of the rivers Kusnārī and Mahwī as coming from the 'mountains of Shamīlān', and the identity of these rivers with the Kunhār and Kishangangā has been demonstrated by me.[5] As regards the much-discussed term *Bolor*, it is certain that it primarily included the whole mountain region drained by the river of Gilgit.[6] Its application, which is certainly vague wherever we meet it, may well have also extended as far east as Skardo or Baltistān. But in that sense, too, its use here by Alberūnī's informants was perfectly justified, since the chain of great mountains which attracts the eye of the traveller on his left as he moves up the Kashmīr valley towards Srinagar, its capital in Alberūnī's time just as now, prominently includes the big ice-girt massif of Mount Haramukh and other high snowy peaks that could be more accurately described as lying south of Skardo than of Gilgit.

Alberūnī's *Bhattavaryān* and *Bhatta-Shāh*.

An interesting question is raised by the terms *Bhattavaryān* and *Bhatta-Shāh* which Alberūnī's information records as the names of the tribes inhabiting these mountains of Bolor and Shamīlān and of their ruler, respectively. When previously discussing these names I suggested that 'Alberūnī's *Bhatta* may possibly represent the term *Bhuṭṭa* or *Bhauṭṭa* (the modern Kś. Buṭ") which is applied in the Sanskrit Chronicles [of Kashmīr] to the population of Tibetan descent generally, from Ladākh to Baltistān'.[7] This view may be supported by the fact that the Balṭī people inhabiting what is now known as Baltistān or Skardo are certainly Tibetan in stock as well as in language,[8] and that the application to them by Alberūnī's informants of the designation Bhuṭṭa or Bhauṭṭa would have been fully justified.[9] But it deserves to be pointed out that in Chilās an important section of the population, supposed to represent the original branch of Shinā, i.e. pure 'Dard', settlers, are known as 'Bots'.[10] Drew states that the people of Chilās 'are

[5] Cf. *Rājat.* II, pp. 361 sq.

[6] Regarding 'Bolor', the references given in *Ancient Khotan*, i, p. 6, note 5, may be supplemented by Chavannes, *Voyage de Song Yun*, p. 28, note 7. In Raverty, *Notes on Afghānistān*, pp. 295 sqq., a useful synopsis will be found of the notices bearing upon the use of the term by Muhammadan authors.

As regards the early use of the term, I now believe with M. Chavannes that the *Po-lu-le* of Sung Yün, the *Po-lun* of the pilgrim Chih-mêng (A. D. 404; cf. Chavannes, *Voyage de Song Yun*, p. 53, note 3), as well as Hsüan-tsang's *Po-lu-lo* and the *P'o-lü* of the T'ang Annals, are all intended to render a name corresponding to 'Bolor'. The last two names extended also to Baltistān ('Great P'o-lü').

[7] Cf. *Rājat.* II, p. 363, note 64; for *Bhuṭṭa* or *Bhauṭṭa*, see my note *Rājat.* I, 312-16.

[8] See, regarding the Baltīs and their character as Muhammadanized Tibetans, Drew, *Jummoo and Kashmir*, pp. 356 sqq.

[9] At the present time the term *Buṭ"* is still generally applied throughout Kashmīr to people coming from Tibetan-speaking parts, whatever their religion, though those better informed know also the name *Balti* (pronounced *Balit* in Kashmīrī) and apply it, as distinct from the Ladākhīs, to the men of Skardo who annually pass in numbers through Kashmīr in search of work.

The use of the term *Buṭ"* for the people of Baltistān is proved to be old by the terms 'Little and Great Bhuṭṭa-land' found in Śrīvara's Chronicle. They correspond to the present *Lukh Buṭun* and *Buḍ Buṭun* by which Kashmīrīs mean Baltistān and Ladākh respectively; cf. *Rājat.* II, p. 435.

Some confusion has arisen between the terms *Buṭ"* and *Bōd*, which latter is applied by Kashmīrīs to Lāmās or Tibetan Buddhist monks and is derived from Skr. *Bauddha*, 'a Buddhist'. This confusion is easily accounted for among Dōgrās and other Indians who are employed in Kashmīr but are generally ignorant of its difficult language. It is reflected e.g. in the statement: 'The word *Bhot* means Buddhist or perhaps, more particularly, Buddhist Tibetan'; cf. Drew, *Jummoo and Kashmir*, p. 231. The term *Buṭ"* clearly represents the Tibetan name *Botpa*, *Bod-pa*, by which the Ladākhīs call themselves; cf. Cunningham, *Ladāk*, p. 290.

[10] I take this statement from an official report on the Gilgit Agency (1909), printed but not published, which I have been allowed to consult. Evidently to the same ethnic designation relates the tradition recorded by Biddulph, *Hindoo Koosh*, p. 16, about an old feud that once 'broke out in the community between two brothers, Bōt and Matchuk, which ended in the defeat and expulsion of all the partizans of the latter. The Bōte are now the most prosperous family in Chilas.'

In view of what has been stated in the preceding note

called by the other Dards "Bhute"';[11] and in Darēl and Tangīr I found the term *Buṭa* generally applied to all Chilāsīs. Is it possible that Albērūnī's information about the *Bhattavaryān* (*Bhuṭṭavaryān) and their ruler *Bhatta*(*Bhuṭṭa)-*Shāh* was somehow connected with this old ethnic designation of Chilās? The materials at present available do not permit us definitely to answer the question.[12]

Importance of Chilās.

The references to Chilās in the records just analysed are far too scanty to throw light on the early history of the territory. Yet by reason of the raids that, as already mentioned, its people have until recent times made into neighbouring tracts, and on account of their universal reputation for bravery, Chilās may lay claim to greater importance among these Dard territories than either its size or resources would justify. For this and other similar reasons, I cannot help particularly regretting that the great length and difficulties of the route to the scene of my contemplated winter campaign in the far-off Taklamakān and Lop deserts, as well as local arrangements made on my behalf, rendered it impossible for me to devote more than a bare three days to my passage through Chilās. In view of the scanty time at my disposal, the rapid marching it involved and the numerous practical tasks that at the same time occupied my attention, I am evidently unable on this occasion to fill up the gap that the inaccessibility of Chilās at the time when Mr. Drew and Colonel Biddulph did their pioneer work for most of the Gilgit Agency obliged them to leave in the published accounts. As, however, the four or five main valleys which make up Chilās, all draining from the south to the Indus, share the same general physical features, a brief record of the impressions gathered on my way down the valleys of Niat and Thak, together with some observations made on the former principal settlement of Chilās by the Indus, may usefully find a place here.

Narrowness of Chilās valleys.

All the valleys comprised in Chilās are very narrow and steep. This characteristic is fully accounted for by the abrupt fall of the land. Over a direct distance which is nowhere more than about 25 miles and in most cases considerably less, they descend from a watershed 14,000 feet or more in height to the Indus bed, which lies here only from about 3,500 to 3,300 feet above sea-level. Eastwards where the huge ice-clad ridge dominated by the peak of Nangaparbat approaches still closer to the deep-cut gorge of the Indus, the valleys descending its northern slopes are even more difficult of access and wholly uninhabited. As a result of this configuration the heads of the habitable valleys, also, are very confined and the area for summer grazing limited. Hence the stock of cattle kept by the people of Chilās is small, and settlements of grazing Gujars, such as are numerous farther south, are conspicuously absent in these valleys.

Descent from Barai pass to Niat.

At the head of the easternmost main valley leading down to Būnar on the Indus we spent a trying night amid rain and snow after crossing the Barai pass. Thence we ascendod on the

I am unable to attach any importance to the conjecture added by Colonel Biddulph in a note, *loc. cit.*: 'This is perhaps the origin of the name "Bôte", applied indiscriminately to all Dards by Cashmere officials.'

[11] See *Jummoo and Kashmir*, p. 459.

[12] Prof. Marquart, *Wēh-rōt* (kindly made by him accessible to me in proofs but not yet published), p. 109, has proposed a very ingenious explanation for the tribal name *Bha(u)ttavaryān*. He assumes it to be the New-Persian plural form, presumably of a secondary adjectival stem in *-ī*, from a local name **Bha(u)ttāwār*, itself the phonetic derivative of a Skr. **Bhuttapura* after the analogy of Purushāwar, the modern Peshawar < Skr. *Puruṣapura*. The derivation suggested is philologically acceptable, but cannot be established in the absence of connecting links or other direct evidence.

For *Bha(u)tta-Shāh* Prof. M. compares rightly the title *Śāhi* borne by a Darad chief, Vidyādhara, whom Kalhaṇa mentions as ruling at Daratpura, probably Gurēz, on the upper Kishangangā; cf. *Rājat.* vii. 913. He is also justified in connecting this *Shāh* : *Śāhi* with the ancient PAO, i.e. Shāhō, the royal style used by the Kuṣana kings and continued for long centuries by their successors on the Kābul river and the upper Indus; cf. my paper *Zur Geschichte der Çāhis von Kābul* (Festgruss an R. v. Roth, p. 199); *Rājat.* iv. 143, note.

When, however, Prof. Marquart, *Wēh-rōt*, p. 110, proposes to derive the name Bolor from the conjectured name of a town **Bhuttapura*, I am, for a variety of reasons which cannot be discussed here in detail, unable to follow him.

morning of August 9th by a steep track, mostly over slopes of shale and precipitous snow-beds, north-westwards to the Fasat pass, close on 15,000 feet. The head of the Fasat valley beyond showed large beds of apparently perennial snow and still more considerable remains of former glaciation, marked by extensive moraine ridges and a big cirque still holding a lakelet. After a descent of some three miles from the pass, the first scanty grass was reached. Continuing over small grassy plateaux watered by side streams and separated by rocky ridges, we passed the few mud hovels of goatherds known by the name of Fasat, at an elevation of about 11,000 feet. A short distance lower down the first firs and other conifers were met with. They clothed the slopes of the now very narrow valley in steadily increasing numbers until, near the junction of the streams of Fasat and Biāh, some two miles below the point last mentioned, we passed into luxuriant forest such as nothing in accounts of Chilās previously read or heard had led me to expect. Not far below this junction, known as Devong, we came upon the first patch of cultivation, unmistakably new. Grand trees, almost all Deodars or *Pinus excelsa*, continued to clothe the steep rocky sides of the valley right down to the small village of Niat. It is situated at an elevation of over 7,000 feet amidst well-cultivated fields of wheat, oats and maize. Information received from the local headmen, confirmed by the abundance of fruit trees, made it clear that, though cultivation was not here of recent date, yet the permanent occupation of this and the villages lower down had commenced only since the *Pax Britannica* had ensured the safety of scattered settlements in the mountains. There could be no doubt that this boon was greatly appreciated; for all Chilāsīs dread the summer heat of the Indus valley, and, as I soon realized by experience, for very good reason.

Old cultivation terraces at Daloin.

In the early morning of the following day we resumed our march down the Niat valley. Close below Niat the path led for about a mile and a half past continuous fields and hamlets collectively known as Gusher. This village was said to count about a hundred households and is probably one of the largest individual settlements to be found above Chilās proper. It owes its existence to the slightly more open ground at the valley bottom and the abundant facilities for irrigation afforded both by the Niat stream and that of the Shatoche Nullah which descends from a pass towards Būnar. Below their junction the valley contracts again, and there is only room for small patches of cultivation below the steep pine-clad slopes. Towards Thē, a small picturesque village within view of the point of junction with the main valley of Thak which descends from the Bābusar pass and the Kāghān watershed, the sides of the valley rapidly become bare of all trees or other vegetation (Fig. 3). It was on approaching that junction that I noticed at Daloin to the north, above the deep-cut bed of the Niat stream, a succession of old cultivation terraces, which had evidently been abandoned for ages, filling a rocky amphitheatre known as Nakhui. There seemed to exist no tradition about them, beyond a vague notion that their abandonment was due to the drying up of some spring once used for their irrigation. It is far more probable, however, in view of the position, that there formerly existed an irrigation channel, cut along or through the cliffs, from the right bank of the Niat stream higher up. But poor feud-torn Chilās had evidently long since lost the skill needed for the construction of such a 'kul' and even the recollection of it.[12]

March to mouth of Buto-gāh valley.

From near the hamlet of Bāsha, situated near the confluence at an elevation of some 5,500 feet, the scenery underwent a complete and striking change. Proceeding down the well-made Kāghān mule road which we struck here, there was nothing to be seen but absolutely barren

[12] Cf. *Ancient Khotan*, i. p. 19, for remains of an ancient irrigation work at the mouth of the Kargāh Nullah, above Gilgit proper, proving a former command of stonecraft such as has been long lost among the population of these Dard valleys.

The term *kul*, connected with Skr. *kulyā*, is used for all irrigation channels throughout this region just as in Kashmir.



1. VIEW OF KISHANGANGĀ RIVER FROM ABOVE KĒL.



2. CROSSING INDUS FROM RIGHT BANK OPPOSITE MOUTH OF HŌDAR VALLEY.



3. VIEW DOWN NIAT VALLEY, NEAR THE, CHILĀS.



4. MOUTH OF BUTO-GĀH VALLEY ABOVE CHILĀS FORT.



5. RUINED SITE OF KINO-KOT AT MOUTH OF HŌDAR VALLEY.



6. VIEW UP HŌDAR VALLEY FROM HĀR HAMLET.



7. VIEW TO SOUTH-EAST FROM UNUTAI PASS.



8. FIELDS OF CHILIDUR BELOW UNUTAI PASS.
Pathāns in foreground.



9. FOREST SCENE IN DALGĪN VALLEY ABOVE GAURĒ-CHESH.



10. MEN OF ESCORT SENT BY RĀJA PAKHTŪN WALĪ.
On extreme left Shahīd of Yasin, their commander.



11. VIEW UP VALLEY FROM NYACHUT, DARĒL.
Afrāz-gul and Sikh 'Alam in foreground.



12. DALGĪN ALP WITH VIEW OF ROCKY SPUR TOWARDS DARĒL.

rock slopes cleft by dry and steep ravines. They reminded me curiously of the fantastically eroded mountain gorges I had seen in the high K'un-lun range south of Khotan, or in the outermost T'ien-shan south of Uch-Turfān. The only exception to this forbidding scenery was the little oasis of Singal, a narrow stretch of rich village land ensconced among fruit trees and vines on the left bank of the river. But the clouds of flies and mosquitoes that assailed us here, a plague dreaded at most seasons throughout lower Chilās, made me glad to leave the otherwise grateful shelter for the heat and glare of the gorge. About seven miles from the Niat–Thak junction we sighted the deep defile of the Indus, impressive in its utter desolation. Here a steep zigzag path led up to the curious peneplain, rising to more than a thousand feet above the Indus, that divides the Thak and Buto-gāh valleys at their outflow. It is formed by a gently sloping gravel glacis, entirely bare just like a typical 'Sai' at the north foot of the K'un-lun about Khotan, and shows with remarkable clearness the effects of erosion, probably aided by wind-driven sand. Having crossed for about two miles this strange bit of Central-Asian landscape, I had before me the deeply hollowed mouth of the Buto-gāh valley flanked by a corresponding peneplain, even larger, on the west. Where the Buto-gāh stream emerged from its narrow rocky gorge into a triangular trough widening towards the Indus (Fig. 4), there nestled a small but delightfully green oasis, the Assistant Political Agent's bungalow set in a large garden and shaded by fine trees.

Captain (now Major) C. T. Daukes, I.A., then in charge of Chilās, accorded me the kindest welcome. It was through his care that all the preliminary arrangements with Rāja Pakhtūn Wālī had been made, and these involved my starting for Darēl on the very next day. The time thus left available for my halt at the chief place of Chilās was barely sufficient for the many things that required attention after the hard travelling of the previous ten days and before I set out on the exacting journey which was to take me over new and wholly unexplored ground. It was hence impossible to secure leisure for ethnographical and similar local observations. In respect of the appearance of the people I can only state that like other observers I thought the Chilāsīs generally inferior in physique to the Dards of Gilgit, Astōr, or Gurēz. Yet something in their expression and bearing seemed to indicate that spirit of independence and disposition towards violence and fanaticism with which the people of Chilās have been credited on account of their ancient predatory habits and the former inaccessibility of their territory.[14]

Brief halt at Chilās.

In Captain Daukes's company I paid a visit to the fort of Chilās situated on the edge of the plateau which overlooks from the west the mouth of the Buto-gāh Nullah, about a mile from where its stream falls into the Indus. It is garrisoned now by a double company of Imperial Service troops, and is adjacent to the ruined 'Bhot fort' of Chilās destroyed by the Kashmīr expedition of 1851, and also to what was until recent times the chief village of Chilās. This visit allowed me to obtain the clue to what otherwise might have appeared a series of very puzzling observations. Already on first approaching Chilās earlier in the day I had noticed the big tree-lined canal running high up above the Buto-gāh stream along the edge of the plateau which flanks its outlet on the west. I was at once struck by the extensive cultivation terraces, now completely abandoned, that covered the whole of the slopes below the canal line right down to the bottom of the valley for a distance of more than a mile. On arriving at the fort and looking down from its commanding position over the broad easy slopes which descend from the plateau edge to the Indus, I had the same striking view before me. Over the whole of this ground there appeared wide terraces carefully levelled for cultivation, but, except for small patches of poorly tilled land, all completely deserted and overrun by coarse scrub and reeds. The contrast between this big area of neglected but manifestly fertile ground, comprising many hundreds of acres, and the luxuriant growth of big

Visit to fort of Chilās.

[14] See Biddulph, *Hindoo Koosh*, p. 15.

Chinārs and fruit trees in the orchards ensconcing the ruined fort immediately below us was very impressive.

Abandonment of former cultivation. Fortunately I could turn to Captain Daukes for competent local information, and the explanation received from him was as simple as it was conclusive. Until 1893, when Chilās territory passed under the protection of the *Pax Britannica* after the fighting previously referred to, practically the whole of its population had been obliged to keep their permanent homesteads within or close to their central settlement, the village of Chilās proper, for the sake of safety from internal or external attack. All the land capable of irrigation in the immediate vicinity was kept under a cultivation as intensive as conditions would permit. But since British occupation had rendered life in scattered small settlements secure, the Chilāsīs had been attracted more and more to life in the higher portions of the side valleys, where cultivation before had been spasmodic or altogether neglected. The Chilāsīs were described to me as having a great and innate dread of the heat that prevails for a great part of the year under the high barren mountains confining the Indus valley, and likewise of its periodical plague of mosquitoes. Thus this permanent removal to what land was available for cultivation in the higher valleys becomes intelligible enough.

Possibility of extended irrigation. Those owning land round Chilās fort neither needed nor desired to cultivate it any longer, though their old rights to it are being maintained. Even when a re-allotment of these lands, carried out in 1912 under the direction of the Assistant Political Agent, had facilitated agricultural work by giving each owner a compact plot, cultivation was resumed only on small patches and entirely by the labour of indigent tenants. These alone, at the time of my visit, composed the scanty population of the village. It was fully in accord with this changed condition of things that the volume of water now carried by the canal from the Buto-gāh stream was far short of the supply that could be made available if the walls, &c., supporting the channel were strengthened. There was direct evidence of the possibility of greatly extended cultivation in the abundant volume of water I saw running to waste in the stream bed. Nor could there be any doubt about the existence of sufficient arable ground on which to use it. To the west of the area below the fort marked by abandoned terraces there stretches a wide glacis-like peneplain close on three miles long from east to west, judging from the map. This, according to tradition, was cultivated in old times and evidently could again be brought under irrigation from the Buto-gāh stream without any engineering feat beyond the reach of local resources.

Deceptive evidence regarding 'desiccation'. I have thought it useful to record these facts in some detail; for they throw an instructive light on questions of 'desiccation' so prominent in connexion with the physical conditions of Central Asia during historical times. Let us assume that in the course of the next thousand years the volume of water received from the high mountains by the Buto-gāh and other Chilās streams was greatly reduced through some climatic or other change. It would then be only natural for any future investigator of the geography of the Hindukush region to point to the large abandoned cultivation terraces of Chilās—supposing that they had for some reason never been reoccupied and that their traces still survived—as conclusive proof of a 'desiccation' that had taken place within a definite historical period. He would next set out to find chronological indications of this period and would, let us suppose, succeed in securing them in the shape of coin finds reaching down to the latter half of the nineteenth century. He would naturally be tempted to ascribe the abandonment of this big 'site' directly to the cause of 'desiccation' and to treat the archaeological fact of the coin finds as a proof of the exact period when that phase of 'desiccation' set in. Yet such a conclusion would evidently be fallacious. The abandonment of those cultivation terraces was, as we happen to know from contemporary evidence, entirely the result of the extension of the *Pax Britannica*, a human factor in no way connected with climatic change. The 'desiccation'

duly noted by our supposed geographer of, say, A. D. 3000 might for all his archaeological indications have taken place five hundred years after our own time. He would merely have confused, as is not infrequently done, *post hoc* with *propter hoc*.

Section III.—ON THE WAY TO DARĒL.

Rāja Pakhtūn Wālī's emissaries.

At Chilās four emissaries of Rāja Pakhtūn Wālī had awaited my arrival, and their presence gave welcome assurance that all arrangements had been made to facilitate our progress through the territory now held by their ruler that no European had previously explored. It had been a special stipulation on the Rāja's part that not a single man from the territory controlled by the Gilgit Political Agency was to accompany me beyond the border of his own, and he may well have intended, by sending ahead some particularly trusted henchmen, to make sure that this condition was not evaded; for the relations between the ruler and his newly subdued subjects were evidently such as to invite intrigue on the lines traditional in these regions—if any one cared to follow them. On my side it was a great relief to find that a request communicated by me some time before my start from Kashmīr had found acceptance with the chief. The interest of our intended survey work, quite as much as the wish to avoid the excessive summer heat of the Indus gorges, had made me ask that we might be taken to Darēl by the mountains at the head of the Khanbarī and Dudishāl valleys instead of the usual route which leads through the former, and this was agreed to.

Descent on Indus.

The first march or two at the outset of this somewhat devious journey was to take us up the Hōdar valley to the north of the Indus, and for this we set out on the morning of August 11th. The heat was great in the deep rocky defiles of the Indus, and the banks of the river below Chilās were forbiddingly barren. So while the baggage was sent some ten miles down-stream by a track that was just practicable, to a point facing the mouth of the Hōdar Nullah, I was glad myself to effect the descent on a skin raft. With the tossing current of the river sweeping the frail-looking craft along at the rate of some fourteen miles an hour, it was an exciting journey, but at the same time refreshing and restful. For most of the distance the huge glacier-fed volume of water was compressed within a bed only 200 to 300 yards wide, closed in on either side by bare black rocks or flats strewn with large boulders. The raft, which consisted of six bullock skins, was protected by our crew of four 'Sōniwāls' from the violence of the whirling currents with a skill inherited through many generations. The snowy weather prevailing on the high glacier-clad ranges far away north and eastwards had caused the river to fall to some twenty-four feet below high-water level. Yet the flood volume was still large enough to allow us to sweep down in safety over what at other seasons is a succession of impassable rock ledges and rapids. It is only below Sazīn that the Indus was said to become altogether impossible for this rapid mode of progress.

Ruined dwellings of Kino-kōt.

Opposite the spot where the Hōdar Nullah debouches the river bed somewhat widens, and here with the help of a skin-raft ferry our baggage was carried across (Fig. 2); in spite of its small quantity, the operation took nearly four hours. The Hōdar valley with its present population of only some eighty families forms a separate little republic, but has come under British influence since a garrison was established at Chilās. At the very mouth of the valley I found visible evidences of the changes that had come over this ground within historical times. About a mile to the east of the spot where the small Hōdar stream falls into the Indus after watering the few sandy fields of Sarī, there rises a detached rocky ridge to a height of about 300 feet (Fig. 5). Noticing the remains of walls I ascended to its top and found the whole of it covered with ruined dwellings built of rough but large and well-set stones. The area, closely packed with decayed walls, extends for about 160 yards from south-east to north-west and is about 100 yards across. No enclosing

wall was traceable, nor was any such protection needed on the east and south, where the rock face falls away very steeply. The site is known as *Kīno-kōt*, 'the Black Fort'. Plentiful debris of pottery and remains from kitchen middens indicated prolonged occupation, but local tradition was silent as to the date of its cessation. The masonry, rough but solid, showed a marked difference from that observed in the huts of the present inhabitants of this tract.

Rock markings.

About half-way down the precipitous southern slope I noticed on a large boulder shallow incised marks, evidently intended to represent that ancient Indian emblem of 'Pādukās', so common in regions where Buddhism once prevailed. One of the two pairs of sacred footprints here outlined measured about 14 by 10 inches. Their pre-Muhammadan origin was attested by similar rock-markings of 'Chakras', obviously rough representations of the Buddhist Wheel of the Law. Whether the 'figure of a woman' said to be engraved on a rock high above the left bank of the Indus about half-way between Chilās fort and Hōdar might also be of Buddhist origin, I regret not to have been able to ascertain, since I heard of it only in the course of my rapid descent of the river when a landing was declared impossible.

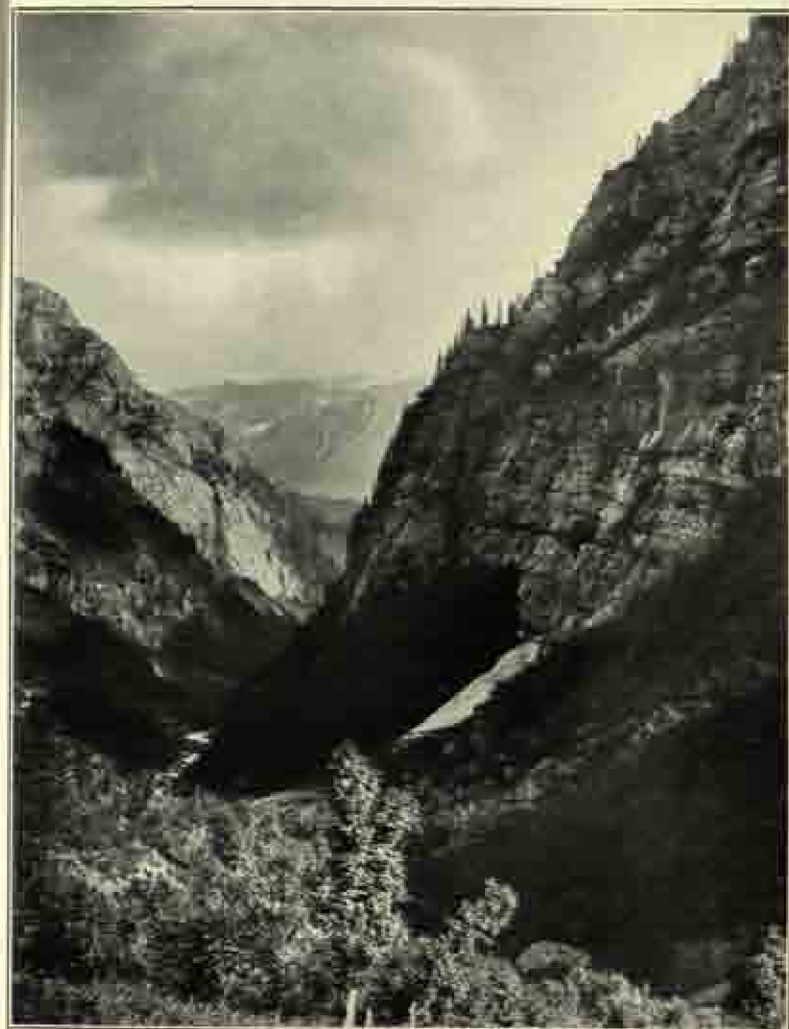
From the height of Kīno-kōt I had a full view of the low sandy plateau extending to the west of the mouth of the Hōdar valley and bearing the name of Damōdas. It is known to have been occupied by the houses and cultivated plots of the largest Hōdar settlement until the big Indus flood of 1841 swept away all irrigation terraces and left this extensive area smothered under rubble and coarse sand.

Ascent of Hōdar valley.

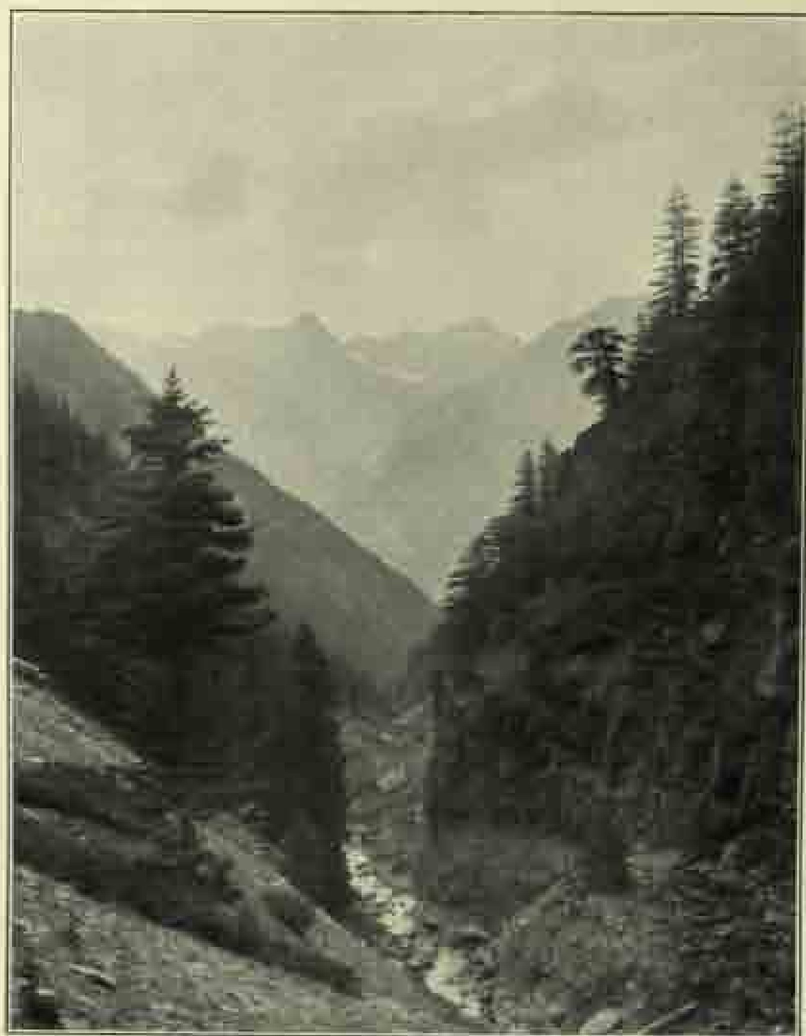
We halted for the night at the hamlet of Balugush, hidden away under fruit trees, and found there coolness as welcome as unexpected at this comparatively low elevation of about 3,630 feet above sea-level. The track by which next morning we ascended the narrow valley between absolutely bare rock faces was impracticable for baggage animals, and men had thenceforward to be employed as bearers until we reached Yāsīn. All marching had, of course, also to be done on foot. Above the hamlet of Dār, a mile from Balugush, a projecting rocky spur (Fig. 6), difficult of access, was found to carry the remains of an old village fort resembling Kīno-kōt but very much smaller. Here the more massive and careful masonry of the walls, as compared with that of the modern dwellings near by, was distinctly noticeable. From Dār for about three miles a narrow but continuous strip of cultivation extended up the valley, as shown by the detailed survey carried out by R. B. Lāl Singh from the point where we crossed the Indus. But farther up, except at one point, Hamāchēch, where the eye was gladdened by luxuriant groves of fruit trees and a few fields, the bottom of the valley was either a barren winding gorge or showed only traces of abandoned cultivation.

Abandoned cultivation near Pakōra.

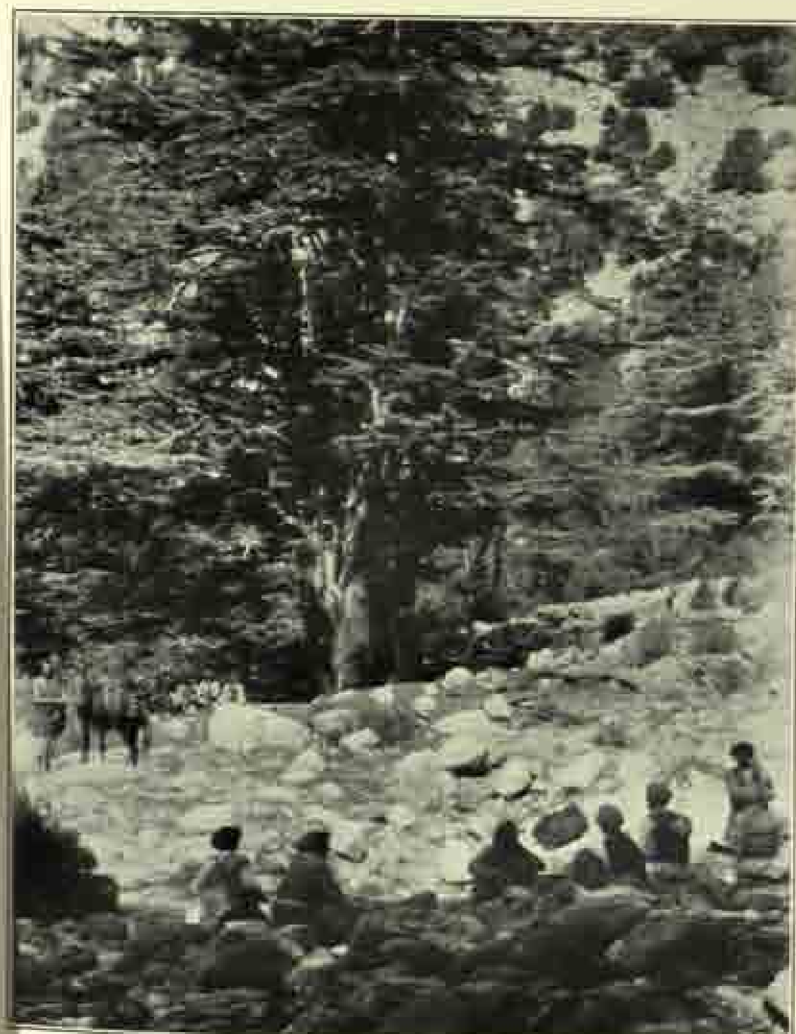
It was difficult to resist the conclusion that since this abandonment the water-supply available for irrigation must here have undergone considerable diminution; for when after covering about twelve miles we left the main valley at an elevation of about 6,000 feet to ascend the Pakōra Nullah north-westwards, we found the well-marked stream bed in the latter quite dry, except for short stretches where the water supplied by springs farther up comes to the surface again. Conditions of obvious 'desiccation', and that actually in progress, revealed themselves on reaching the little hamlet of Pakōra, at about 7,200 feet. The spring that supplies the area now under cultivation was said no longer to yield water sufficient to reach the terraced fields visible for some distance below. Its supply, moreover, had to be dammed up daily to form a small reservoir in order to reach the present cultivation. This instance of undoubtedly recent 'desiccation' appears to deserve special notice just because it contrasts with the conditions observed, as we shall presently see, in the well-watered valleys of Darēl and Tangīr, which lie but a short distance westwards. I may add that the 'desiccation' here noted, which may or may not be local, cannot be ascribed



13. VIEW DOWN KĒL VALLEY FROM ROUTE TO BARAI PASS.



14. VIEW DOWN ISHKŌBAR VALLEY TOWARDS NYACHUT, DARĒL.



15. DEODARS BELOW GABAR, DARĒL.



16. REMAINS OF LOHILO-KŌT, BELOW POGUCH, DARĒL.

to deforestation; for I found the slopes above and below Pakōra remarkably well wooded with evergreen tree-growth, including many big Ilex, which on account of the winter grazing it yields for goats, &c., appears to be religiously protected in this valley.

We encamped that day in open meadow land in the valley above Pakōra hamlet, at an elevation of about 7,600 feet, and there first experienced that attack of fierce mosquitoes which was to remain a constant plague throughout our visit to Darēl and Tangīr. Continuing next morning the ascent of the broadening valley, we passed the few scattered homesteads of Chilidur surrounded by fertile maize fields (Fig. 8). Both above and below them I noted old cultivation terraces for which the available water-supply was declared to be no longer sufficient. That some of these terraces must have been abandoned for ages past was clear; for the luxuriant forest of firs and pines which we first reached above Chilidur had completely overrun them. Yet we saw no water on the surface as the track led us up through a magnificent forest of Deodars, cedars, and firs to the pass known as Unutai-galī on the watershed towards the big Khanbarī valley (10,510 ft.). The distant view obtained here both to the south-east (Fig. 7) and north-west allowed us to fix our position with accuracy on the plane-table, from peaks previously triangulated on the Chilās side and on the Gilgit–Indus watershed. Ascent to Unutai pass.

On the Unutai pass we had reached the western border of Darēl, and the view of the Khanbarī valley immediately before us at once revealed two of the characteristic features of that territory. Luxuriant conifer forest, far thicker than any seen since leaving the Kishangangā, clothed the steep slopes descending towards the Khanbarī river, while at the head of the valley could be seen extensive open uplands right up to the watershed range towards Gilgit. It is this magnificent growth of timber in the valleys at an elevation of about 7,000 to 11,000 feet and the plentiful summer grazing higher up that provide Darēl with two main sources of potential wealth. The descent into the Datsoi Nullah leading down to the Khanbarī river was extremely steep, and after about two miles led over huge masses of rock fragments thrown down in wild confusion and completely filling the gorge. Farther down its bottom turned into an impassably narrow cañon, and the track above it became most difficult for the men carrying loads. Forests and uplands of Khanbarī.

Fortunately a contingent of Darēlīs now came up to relieve them, and half a mile from where the deep-cut gorge emerges into the main Khanbarī valley, at a place called Domōt, I was met by Mehtarjao Shāh 'Ālam, Rāja Pakhtūn Wālī's nephew and Wazīr, who had been sent to receive and escort me. He had brought with him a large and well-armed posse of men selected from the Rāja's own body-guard and comprising some of his most trusted retainers (Fig. 10). The careful watch they kept over us from the start—I was personally never able to move or halt without being closely attended by two or more of these alert men-at-arms—seemed to afford adequate protection against any attempt by unruly subjects of the Rāja or by fanatical visitors from other parts of the Indus, Kōhistān, and Swāt, who might have liked to embroil him by an attack upon us. Reception by Mehtarjao Shāh 'Ālam.

At first this close guarding caused me serious misgivings as to the freedom that I should be allowed, in particular for useful topographical work. It was mainly in the interest of the latter that I had asked to be permitted to enter Darēl through the mountains instead of by the Indus valley route. It proved a difficult line of progress, but it had great advantages for surveying operations, and fortunately I soon found that we were left full liberty to use them. At the expense of much hard climbing a succession of excellent plane-table stations were secured, the best on the great spurs descending from the Indus–Gilgit watershed and dividing the several valleys comprised in Darēl and Tangīr. The spell of fine weather that prevailed right through our visit to this territory enabled us to take advantage of the extensive views towards the snowy ranges above the great Indus bend and westwards about the head-waters of the Swāt river. Thus we were able Survey work in Darēl and Tangīr.

to fix our positions accurately by intersections from peaks previously triangulated by the Survey of India. In spite of the trying conditions and the severe strain of constant hard marching, R. B. Lāl Singh displayed, as throughout our subsequent travels, his old zeal and vigour to the full. His fifty-one years, an age which among Indians might otherwise count as advanced, had in no way impaired his keen spirit or physical fitness. It was mainly through his devoted exertions that it was possible in eleven days, all that I was able to spare for this ground, to map on the scale of two miles to the inch nearly twelve hundred square miles of ground which had never been seen by European eyes. The result is being duly utilized by the Survey of India for its maps.

A scion of Khushwaqt race.

I consider it both an obligation and a pleasure to record here how much the tasks compressed within this short space of time were facilitated by the excellent relations established from the start with Mehtarjao Shāh 'Ālam and the band of Pakhtūn Wālī's trusted retainers who formed our ever-watchful guard. That we owed their ready help entirely to the chief's good will and to his intelligent trust in the wholly non-political objects of my visit is certain. His young nephew, Shāh 'Ālam (Fig. 25), showed all the quickness of intellect and the mountaineer's agility befitting a scion of the Khushwaqt race. Notwithstanding its inherited proneness to internecine strife, with its accompaniment of unscrupulous intrigue and violence, this race of hill chieftains has been able by its nobler qualities to maintain for long centuries its hold upon the attachment of the people settled about the head-waters of the Gilgit and Chitrāl rivers. I thought I was able to recognize in the manner, energetic and yet pliant, of Mehtarjao Shāh 'Ālam those qualities which, coupled with indubitable personal courage, had enabled his uncle and master to establish his sway over tribes alien in race and speech and accustomed to long periods of turbulent anarchy.

Pakhtūn Wālī's men-at-arms.

His sharp-cut high-bred features of unmistakable ' Ghalchah ' or *Homo Alpinus* type would alone have sufficed to distinguish Shāh 'Ālam from the strangely mixed crew of Pakhtūn Wālī's supporters placed under his orders (Fig. 10). Men of widely different breed, they were all of distinctly shady antecedents, but ' handy ' and pleasant to deal with. Most of these alert fellows were outlaws and cut-throats from adjoining portions of the Gilgit Agency, Mastūj, Chitrāl, or from the independent tribal territories on the Indus and the Upper Swāt river, who, with hands already bloodstained, had joined Pakhtūn Wālī's fortunes at different stages of his adventurous career. Their commander was burly fair-haired Shahīd (Fig. 28), whose name, meaning ' martyr ', was curiously at variance with his look of a jovial ruffian. He belonged to Pāpat in Tangīr. He had attached himself from the start to Pakhtūn Wālī's person and was credited with having been a chief instrument in all the violent deeds accompanying the mixed feuds and intrigues by which his capable chief, for years a hapless refugee in Tangīr and dependent on traditional charity, had gradually made himself master of that once turbulent valley.

Rise of Pakhtūn Wālī's fortunes.

Established in this position Pakhtūn Wālī was able to secure a considerable annual revenue from the sale of timber in the fine forests of Tangīr to Kāka-khēl traders from the Peshawar District. These resources had allowed him to collect, arm, and maintain the small mercenary force that helped him about 1909 to extend his sway over the tribal republics of Darēl and Sazīn. The methods by which he had thus, in true *condottiere* fashion, carved out a new kingdom of his own, were undoubtedly such as the history of the Hindukush valleys and the hill tracts farther south must long have been familiar with.[1] But all the more interesting was it for me to get into direct

[1] It deserves to be noted that Pakhtūn Wālī had lived for some years before 1895 under the protection of that powerful Afghān chief, Umrā Khān of Jandōl, whose success in establishing his rule over most of the hill tribes between the Kūnar valley and the Indus was due to equally effective if unscrupulous methods. The end of this kingdom came with the Chitrāl campaign of 1895; for Umrā Khān, unfortunately for himself, had by his policy of expansion come into collision with the Indian Government.

There is reason to believe that Rāja Pakhtūn Wālī had

touch with those who had helped in building up this most recent of Hindukush 'states' and could give first-hand information about the process.

Nor did I fail to appreciate the advantage of the fact that quick-witted Shāh 'Ālam and his intelligent henchmen, while fully familiar with the ground and the people, were yet, from the very character of their employment, apt to keep a mental detachment from local interests. Regard for these, among more settled subjects, might well have induced reticence on various topics. I may add that the knowledge of the Paṣhtō language which we found among many of Pakhtūn Wālī's retainers and the steady spread of which up the Indus Kōhistān is a noticeable fact, made it easier for us to obtain information than it might otherwise have been among the Shiṇā-speaking Darēlīs.

Resources of Khanbarī valley.

From the left bank of the Khanbarī river, where our first camp in Pakhtūn Wālī's territory had stood at an elevation of about 5,500 feet, the route led north-westwards up a well-watered side valley known at its mouth as Domōt. The Khanbarī river, where we crossed it by a rough bridge above the junction, carried a volume of water probably greater than that to be found in any of the Chilās streams. This, as our survey showed, is due to the fact that its head-waters drain a long stretch of the Gilgit–Indus watershed, probably fully twenty-eight miles in a straight line from east to west and falling nowhere much below 14,500 feet. Though our line of travel did not allow me to touch the main Khanbarī valley anywhere except at Domōt, yet both the views gained from subsequent survey points higher up and the information collected showed conclusively that along the Khanbarī river itself and in the upper side valleys there is abundant ground sufficiently open for cultivation and an ample water-supply for its irrigation. In striking contrast with these favourable conditions, the area actually occupied proved very limited, and everything I could observe or learn pointed to scarcity of population as the chief or sole cause. In fact, the Darēlis were said to have contented themselves, before Pakhtūn Wālī's conquest, with using only the extensive grazing grounds at the heads of the valleys drained by the Khanbarī river. The slow immigration of Gujar settlers from the south and west appears to have commenced only since the advent of more peaceful conditions.

Cultivation in Domōt valley.

The main facts here briefly indicated are well illustrated by what we saw on our march up the Domōt valley on August 14th and in turn give additional interest to our observations. For about a mile from its mouth the path led past fertile fields, overlooked from cliffs to the north by the ruins of an old village fort. Farther up, though the valley bottom remained wide for a distance of about three miles, there extended a succession of abandoned cultivation terraces, carefully levelled but overrun by luxuriant scrub and reeds. Groves of big plane trees, which had once been planted by the side of irrigation channels, still flourished and gave grateful shade; all of them showed great age. Only in small scattered patches had cultivation been resumed during the last few years, and showed rich crops of wheat and maize. At the foot of a conspicuous rocky spur known as Gaubē-chesh the valley bifurcated, and as the track turned up the branch trending westwards at an elevation of about 7,000 feet, it became completely covered by magnificent forest, mostly of Deodars (Fig. 9).

Forest of Dalgīn valley.

Though the bottom of the valley grew steeper and gradually narrowed, there were everywhere traces of ruined walls that had once supported carefully terraced fields. The size of the great trees that had grown up over them left no doubt that cultivation must have been abandoned here for centuries. Splendid forest growth, quite untouched by the axe, clothed the slopes on

been influenced early in his adventurous career by the rôle Umrā Khān had played on a bigger scene—and also that he remembered the lesson taught by the final fate of the Pathān chief. It was probably on this account also that in the later stage of his own career he was anxious to open friendly relations with the representatives of the British Rāj.

both sides of this Nullah and, as the distant view from a high ridge subsequently showed, in the other side valleys also. From the steep ridge just referred to we skirted the head of the Dalgīn Nullah north-westwards by an almost level track leading through beautiful forest, where the luxuriance of the vegation with its carpet of alpine flowers vividly recalled the glories of familiar Kashmīr 'Margs'. We camped that evening on a stretch of lovely mountain meadows edged by grand firs and pines at an elevation of just under 10,900 feet (Fig. 12). The distant view which lay open to the east and south-east allowed us not only to locate high triangulated points above Chilās but, when all the clouds had lifted towards sunset, to sight, in its full majesty, the wonderful ice-clad pyramid of Nangaparbat itself. It was a scene of overpowering grandeur, and made me forget all the trying marches near the Indus and the constant plague of mosquitoes which had followed us even to this height.

Climatic advantages of Darēl and Tangīr.

The fact that I found at our Dalgīn camp the identical flora with which I had become familiar during successive summers at Mohand Marg, my favourite alp above the Sind valley of Kashmīr, at exactly the same elevation, suggested to me at the time an important geographical conclusion. As it soon received abundant confirmation from what I saw at Darēl and Tangīr, it may as well be briefly recorded here; for I have had no opportunity, then or since, of collecting more exact data. It had already been made clear by what I have noted as to the present aspect of the Domōt Nullah, that the abandonment of the once extensive cultivation in the Khanbarī valley and its branches could not be ascribed to want of adequate water for irrigation, i.e. increased aridity of climatic conditions or 'desiccation', to use a brief expression. But it is the magnificent forest growth to be found everywhere from Khanbarī to Tangīr at elevations between 7,000 and 11,000 feet that demonstrates most plainly that in the matter of rain and snowfall these valleys enjoy climatic conditions wholly different from those prevailing higher up the Indus or elsewhere between the great Indus bend and the Hindukush.

Abundance of forest growth.

The contrast between the latter regions, practically devoid of all forest, and the abundantly wooded upper valleys of Darēl and Tangīr is quite as striking as it is for the traveller who passes into Kashmīr from the barren rocky valleys of Ladākh, Baltistān, or Gilgit. It was of Kashmīr, and more particularly of its alpine plateaux and side valleys, that I was constantly reminded by all the main physical aspects of Darēl and Tangīr. As far as I could judge without expert physiographic knowledge, the conditions of vegetation and climate in these valleys beyond the Indus corresponded closely to those to be met with at similar elevations within the territory of Kashmīr proper.

Adequate moisture accounted for.

Looking at the map I am strongly inclined to connect the abundant moisture that the valleys of Darēl and Tangīr undoubtedly receive—whether mainly in the form of heavy winter snowfall or of summer rains also I am not in a position to assert—with the peculiar configuration of the Indus valley to the south and the orography of the high ranges adjoining it. The map shows that the Darēl and Tangīr valleys fall just within the mountain area to which the valley of the Indus, stretching north and south from its great bend below the mouth of the Tangīr river to the plains of Yusufzai and Attock, admits the winter rains of the North-West Frontier and those of the monsoon. Farther north and east the moisture-carrying clouds are stopped by the intervening mountain chains. We know that, probably for exactly corresponding reasons, the high valleys at the head-waters of the Swāt river, flowing from north to south, are similarly well wooded, whereas Chitrāl and Mastūj, lying beyond high ranges to the north-west and north, though at no great distance, are almost as bare of tree growth as the valleys farther up the Indus.

Watershed towards Darēl.

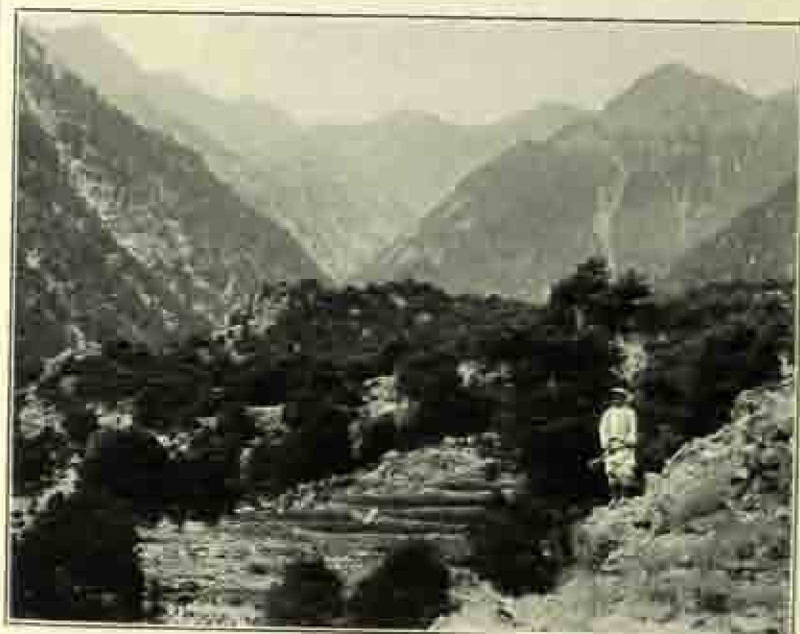
Our march of August 15th, which took us over high ground into Darēl proper, was long and trying, but offered exceptional advantages for surveying operations. First the ascent led



17. CULTIVATION ABOVE DALŌT, DARĒL.



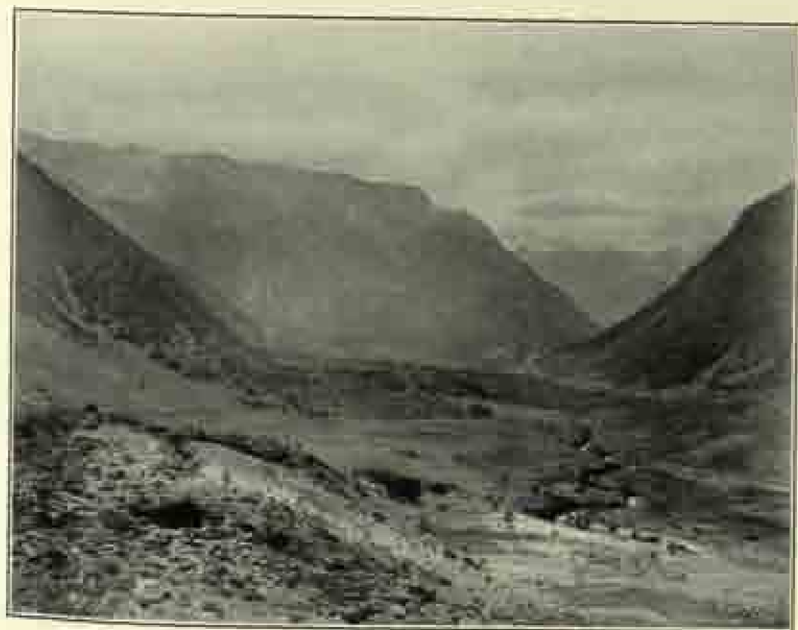
18. VIEW DOWN MAIN DARĒL VALLEY FROM ABOVE MANKIĀL.
Rajī-kōt hill in distance marked by arrow.



19. SHIYO-KŌT, LOOKING UP SHIGO-GAH VALLEY, DARĒL.



20. WALLS OF ZHŪRI-KŌT, DARĒL.



21. VIEW UP DARĒL FROM RAJĪ-KŌT SITE.



22. TOP OF RAJĪ-KŌT HILL, LOOKING NORTH-WEST.

steeply up a boulder-strewn Nullah towards the serrated rocky crest of a spur curiously reminiscent of Dolomite scenery (Fig. 12). Skirting this to the north-east, we reached after about three miles a narrow ridge overlooking, at an elevation of about 12,500 feet, both the Dalgīn and Iti Nullahs. From here we obtained a magnificent panoramic view over the whole ground extending from the Gilgit–Khanbarī watershed to the glittering massif of Nangaparbat and the line of snowy peaks continuing it towards the Indus Kōhistān. An atmosphere of dazzling clearness seemed to bring the great ice-clad range quite near, although in fact some sixty miles distant.

Then another two miles' ascent over huge beds of detritus and across what must once have been the *névé*-filled bed at the head of a former glacier brought us to the pass known as Phūno-phūno, at an elevation, as determined by barometrical observation, of about 13,650 feet. It was found to cross the watershed not towards Darēl but towards the Kuren valley, which is drained by a considerable stream that joins the Khanbarī a short distance above its confluence with the Indus. The Kuren valley, from what we could see while skirting the rocky crest at its head, appeared to resemble closely in its physical features the main Khanbarī drainage. Less than a mile's progress along the above-mentioned crest brought us to a slight depression in the range, which at an elevation of a little over 14,000 feet gave access to the Ishkobar valley at the head-waters of the Darēl river.

Descent towards head-waters of Darēl.

From this, the Chiyagal pass, wide views were again obtained towards the Gilgit–Indus watershed range, showing clearly the extensive pastures that its southern slopes afford to the herds of Darēl. An easy descent over detritus slopes soon led us into a wide and almost flat basin showing unmistakable signs of having once been occupied by a large glacier, and next to a gently sloping amphitheatre of broad grassy uplands. Descending through this Pāmīr-like tract we reached the first firs below the fine meadows of Jojolōto, some four miles from the pass. Above this point birch trees clothed the slopes just as they would in Kashmīr at this elevation of 11,000 to 12,000 feet. The track, after entering the forest, became very steep and either followed the boulder-filled bed of the stream or led along precipitous rock slopes (Fig. 14) scoured in places by land-slips, leaving us little time to admire the luxuriant vegetation on every side. After we had traversed about four miles of the forest, the firs gave place mainly to magnificent Deodars, and these continued in unbroken density right down to the junction with the main Darēl valley. As the bottom of the Ishkobar Nullah widened I noticed old cultivation terraces completely overrun by the forest. The first were met with a little above a point known as Kīnekale, some seven miles below Jojolōto, where decayed walls of an old *chiusa*, half smothered by forest growth, stretched across the valley and up the precipitous flanking spurs.

Luxuriant forests of Nyachūt.

Lower down, too, where the mouth of the valley opens out into an almost flat delta watered by branches of its stream, the forest maintained its hold. Huge Deodars up to a hundred feet and more in height rose in dense clumps over what was evidently fertile and had once been cultivated ground but was now wholly unoccupied except for a few log huts of graziers. As we passed down towards the main valley known in this part as Nyachūt, there opened before me a delightful view across verdant meadow land and towards the frowning lofty range rising above it westwards. The slopes facing the main valley on that side looked very precipitous (Fig. 11). Yet everywhere, right up to a height of about 11,000 feet, they appeared clothed with forest as fine and close as that through which we had passed on the way from Ishkobar. It was a sight of alpine richness as impressive as any I had ever beheld in Kashmīr and a fitting introduction to the latent resources of Darēl.

Summer settlement at Gabar.

That these resources, however neglected in modern times, had yet left their mark on the present conditions of life in the valley became apparent as in the twilight I passed, near the left

bank of the main stream, a small cemetery belonging to Darēl people, who every summer come up to this region to graze their cattle and cultivate the land. On the wooden enclosures of the graves there was much good carving, with decorative motifs clearly derived from Graeco-Buddhist art, recalling those I had seen among the ruins of the far-away Niya Site and elsewhere. Nothing like it had previously met my eyes at the rudely marked resting-places of the dead or in the dwellings of the living, in the course of this or of my former journey from Kashmīr. As I camped that night at the little village of Gabar, the highest regular summer settlement of Darēl, about 7,300 feet above the sea, I had the distinct impression of having reached ground where traces of an earlier and more developed civilization might yet be looked for.

Section IV.—DARĒL OLD AND NEW

Before I proceed to record the observations I was able to make during my passage down the main valley of Darēl, it will be convenient to review those early notices of the territory which invest it with a special antiquarian interest. We owe them entirely to the record of the travels of those two famous Chinese pilgrims Fa-hsien and Hsüan-tsang. I have already had occasion to examine these notices, on account of their topographical bearing, when discussing the information furnished by Chinese sources about ancient 'Udyāna' or Swāt,[1] and I may therefore here treat them briefly.

Fa-hsien's passage through *T'o-li*.

Fa-hsien's narrative describing his passage about A. D. 403 from the side of Chieh-ch'a 竭叉 or Kāshgar[2] to Wu-ch'ang 烏長 or Swāt tells us:[3] 'From this [the travellers] went westwards towards North India, and after being on the way for a month, they succeeded in getting across and through the range of the Onion mountains. The snow rests on them both winter and summer.' After a reference to the dangers there besetting travellers from 'venomous dragons', in the manner familiar from other Chinese accounts of the Ts'ung-ling or the Pāmīrs, Fa-hsien continues: 'The people of the country call the range by the name of the "Snow Mountains". When the travellers had got through them, they were in North India, and immediately on entering its borders, found themselves in a small kingdom called *T'o-leih* (*T'o-li*), where also there were many monks, all students of the Hīna-yāna.

'In this kingdom there was formerly an Arhan, who by his supernatural power took a clever artificer up to the Tushita heaven to see the height, complexion, and appearance of Maitreya Bodhisattva, and then return and make an image of him in wood. First and last, this was done three times, and then the image was completed, eighty cubits in height, and eight cubits at the base from knee to knee of the crossed legs. On fast-days it emits an effulgent light. The kings of the [surrounding] countries vie with one another in presenting offerings to it. Here it is,—to be seen now as of old.'

Fa-hsien's route down the Indus gorges.

The narrative next proceeds to tell how 'the travellers went on to the south-west for fifteen days' through the gorges of the Indus until they arrived in Wu-ch'ang or Swāt. The graphic description given of this trying route, with its dangerous 'paths chiselled along the rocks', its

[1] Cf. *Serindia*, i. pp. 5 sqq. If I continue to use the form *Udyāna* as the Skr. designation of the territory now known as Swāt, it is merely because long-continued practice has made it convenient to do so. I fully believe, in view of the convincing arguments set forth by Prof. Sylvain Lévi, in his important paper *Le catalogue géographique des Yakṣa*, *J. As.*, 1915, janvier-février, pp. 105 sqq., that the Skr. form *Udyāna*, attested mainly by a note of Hsüan-tsang, is an *idolum libri* resting on a scientific 'popular etymology', and that the ancient Indian name of the Swāt valley which it was intended to render, was in reality *Oḍḍiyāna* or *Uḍḍiyāna*. But the 'Panditized' form *Udyāna* may be of much earlier origin than the time of Hsüan-tsang,—and anyhow offers the practical advantage of simplicity.

[2] The identification of this starting-point, which had puzzled all previous interpreters, as Kāshgar is due to M. Chavannes, *Voyage de Song Yun*, p. 54, note 3.

[3] See Legge, *Fâ-hien*, pp. 24 sqq.

ladders to be climbed above precipices and its 'bridge of ropes', agrees closely with what modern accounts we possess of the very difficult tracks leading down the deep rocky defiles, never yet visited by any European, through which the Indus has cut its way from below Tangīr. That Fa-hsien's description refers to this, the most direct route connecting Darēl with the central portion of Swāt and its old capital, marked by the present Manglaor, is placed beyond all doubt by its exact agreement with what Hsüan-tsang tells us of the journey that he took in the reverse direction from the latter place up the Indus to the valley of Ta-li-lo and its great shrine of Maitreya. To this we shall recur presently. Of Fa-hsien's notice of T'o-li there still remains to be mentioned the interesting statement that, according to the tradition of the local people 'handed down by their fathers from of old', the propagation of Buddhist doctrine eastwards began from the setting up of that sacred image of Maitreya 'rather more than three hundred years after the Nirvāṇa of Buddha'.

Hsüan-tsang's account of *Ta-li-lo*.

The correct identification of Fa-hsien's *T'o-li* 陀歷 with Darēl was first made by General Cunningham,[4] and it soon found complete confirmation when Hsüan-tsang's account of the same territory became accessible.[5] 'North-east of Mêng-chieh-li', so the *Hsi-yü-chi* tells us,[6] 'over hills and across gulleys ascending the Indus by hazardous paths through gloomy gorges, crossing bridges of ropes or iron chains, across bridges spanning precipices or climbing by means of pegs for steps, a journey of above 1,000 *li* brings you to the *Ta-li-lo* valley, the old seat of the government of Udyāna. The district yields much gold and saffron. In the valley is a great monastery by the side of which is a carved wooden image of Tzŭ-shih P'u-sa (Maitreya Bodhisattva) of a brilliant golden hue and of miraculous powers; it is above 100 feet high; it was the work of the Arhat Madhyāntika who by his supernatural power thrice bore the artist to the Tushita Heaven to study Maitreya's beautiful characteristics; the spread of Buddhism eastwards dates from the existence of this image.'[7] That *Ta-li-lo* 達麗羅 is as exact a transcription of Darēl or an earlier form of the name as Chinese phonetics would permit of, does not require any special demonstration. The close agreement of what both pilgrims tell us of the miraculous image of Maitreya there worshipped leaves no possible room for doubt as to their referring to the same territory, and its location in the present Darēl is conclusively proved on topographical grounds by the details that both narratives record as to the bearing, distance, and character of the route connecting it with Udyāna or Swāt.[8]

Chinese data about Darēl.

The brief mention which the T'ang Annals make of Ta-li-lo as situated to the north-east of Mêng-chieh-li and as forming 'the ancient territory of Udyāna',[8a] is probably derived from

[4] Cf. *J.A.S.B.*, xvii, Pt. ii, p. 19; *Ladāk*, pp. 2, 46 sq. I take these references to publications not at present within my reach from Beal, *Si-yu-ki*, i. p. 134, note 37.

[5] The merit of having recognized the name of Darēl in Hsüan-tsang's *Ta-li-lo* also belongs to General A. Cunningham; see his *Ancient Geography of India*, p. 82.

[6] See Watters, *Yuan Chwang*, i. p. 239. For the location of Mêng-chieh-li, the ancient capital of Swāt (restored by Watters into 'Mangkil'), at Manglaor, cf. Colonel Deane's *Note on Udyāna and Gandhāra*, *J.R.A.S.*, 1896, p. 656; *Serindia*, i. p. 15.

[7] The text of the *Life*, which presents substantially the same account, seems to imply that Hsüan-tsang only heard of Ta-li-lo and the road to it; cf. Watters, *Yuan Chwang*, i. p. 239. But the detailed and graphic description supports the text of the *Memoirs*, which apparently implies an actual visit.

[8] For references supporting details of the account given of this difficult route by the two Chinese travellers, cf. *Serindia*, i. pp. 6 (with note 8), 7 sq.

Sung Yün, too, shows a knowledge of this track from Darēl down the Indus to Swāt, when he mentions the alternative route leading through *Po-lu-le* which his party wisely avoided, and describes its formidable difficulties; cf. Chavannes, *Voyage de Song Yun*, pp. 28 sq.; *Serindia*, i. p. 12.

It is probable that the references in Chinese historical texts of Former and Later Han times to forbidding mountain tracks leading by routes not clearly defined to *Chi-pin*, where travellers have to pass by ladders, wooden galleries, ropes over frightful precipices, &c., partly at least reflect reminiscences of this Indus river route; cf. Wylie, *J. Anthrop. Inst.*, x. p. 37; Chavannes, *T'oung-pao*, 1907, p. 217, with note 4.

[8a] Cf. Chavannes, *Turcs occid.*, pp. 128, 311.

the *Hsi-yü-chi* and adds no fresh information. So we can turn at once to the data about ancient Darēl supplied by the above-quoted notices of our Chinese pilgrims. Their mention of the miraculous wooden image of Maitreya, which necessarily interested them most and about which they record interesting and concordant details, must be left for discussion below. Of other points it deserves to be noted that Fa-hsien speaks of the kingdom as small and yet containing many monks. Here, I believe, we may recognize a clear indication of the fertility of the Darēl tract. Evidence of this is to be found also in the fact that both Darēl and Tangīr attract, at the present day, a large number of Saiyids and attendant 'Tālib-ilms' from neighbouring parts to the south and west, who find ready welcome and live on the fat of the land. It is mainly to their presence that the two valleys owe the reputation of containing fanatical elements. Gold is still washed in the Darēl river and along the adjoining course of the Indus, though, as elsewhere in the Indus valley, the output is now very limited. I did not hear of saffron being cultivated at the present time in Darēl. But the fact that the climate so nearly resembles that of the Kashmīr valley, still famous for its saffron fields, seems sufficient to support Hsüan-tsang's statement. Finally it deserves to be noted that his reference to Ta-li-lo as 'the old seat of the government of Udyāna' points to a territory of some importance, such as Darēl with its adjoining tracts might well become again under favourable political conditions.

Valley above Nyachūt.

The abundant resources, actual and potential, that Darēl offers, even in its present state, impressed me forcibly during the few days I was able to spend in its main valley. On the morning following our arrival at Nyachūt a glorious view opened before me northward up the broad wooded valley. At its bottom there extended rich meadow land, almost flat, flanked on either side by magnificent forest clothing all the slopes of the main valley and side Nullahs (Fig. 11). The high peaks visible in the background were those overlooking the passes of Dōdar-galī and Suj-galī, by which access can be gained during the summer and early autumn to Gūpis at the confluence of the rivers of Yāsīn and Ghizar and thus to the main Gilgit valley.

Looking up towards those passes I thought of the delight with which Fa-hsien, and other Chinese travellers who may have followed this route from the Pāmīrs and the Barōghil, must have greeted the fine open valley with its rich alpine vegetation, after all the wastes of rock, ice and high barren plateaux they had traversed. It must have appeared to them like an enticing gate to the fair lands of India. Riding back to where the Ishkobar stream debouches into Nyachūt, at an elevation of about 7,500 feet, I noticed how little of the cultivable ground on either side, all bearing traces of old terraces and canals, was occupied by the present fields of barley or maize. The abundance of water for irrigation was proved by the fact that the main stream alone at the above point had a flow of some 180 cubic feet per second, even at that early hour of the morning when the snow-beds high up on the ranges had not yet commenced to melt and contribute to the volume.

Descent from Gabar.

From our camp at Gabar a very gentle descent led down through splendid forest to near the mouth of the Kiner-gāh Nullah, where the last Deodars were left behind (Fig. 15). There the valley opened to a width at the bottom of over a mile and a half. Old cultivation terraces, now deserted, were seen here too in plenty. But in pleasant contrast to this familiar sight I was struck by the care bestowed on the solid embankments that here confine the main stream and canals, and by the shady rows of trees planted along the latter. This sight and the rich crops, mainly of wheat, which covered all cultivated ground from below the outlet of the Gilich Nullah (Fig. 17) left no doubt that, however much else might have disappeared from Darēl in the course of centuries of misrule and anarchy, agricultural skill survived.

That there was ample scope for its use and also far more ground than the available population

could till was clearly evident from the aspect of the valley. The eye could travel along it right down to the barrier raised by the mountains across the Indus. At the mouth of the numerous side valleys extensive alluvial fans, now largely abandoned to tree-growth, suggested abundant space for increased cultivation. The day's short march brought us to a high breezy plateau by the side of one of these fans, overlooking southwards the luxuriant fields of the compact group of villages collectively known as Mankiāl (Fig. 18). There, near the orchards and scattered holdings of Dalōt village, well above the broad sun-bathed trough of the main valley, I was able to allow my surveyors and followers a few hours' rest in full daylight, the first they had enjoyed since leaving Kashmīr.

Cultivation below Dalōt.

A list of 'old places' had at my request been kindly furnished to me there by Rāja Pakhtūn Wālī's orders, and the provision of competent guides in the persons of intelligent greybeards from Mankiāl allowed me to start their inspection early on the following morning. The number of the ruined sites reported, all known by the term of *kōt*, 'fort', was relatively large, and the time available for my visit to Darēl very limited. So my survey of these sites had to be rapid. Yet it sufficed to show the typical features common to almost all of them and to convince me that most, if not all, were remains of fortified settlements dating back to pre-Muhammadan times. Instead of recording such details as I was able to observe successively at each of these small sites, it will be more useful to indicate at once what characterizes them in general.

Remains of fortified settlements.

As regards position, all the ruins occupy rocky ridges naturally strong for defence; these either jut out, as in the case of Ramal-kōt close to the south-east of Dalōt, above the alluvial slopes of the valley, or else form the last precipitous offshoots of spurs descending to the latter. Whether large or small, these ridges were found to bear elaborate terraces covered with the much-decayed remains of closely packed dwelling-places. On the larger sites there were also walls of more massive construction enclosing the whole occupied area. Rough stones were the material used throughout; but these were set with a care and skill far superior to those seen in the present dwellings of Darēl and were often of considerable size, especially in the outer enclosing walls. The latter still stood in places to a clear height of eight feet or more, and the terrace walls rose often much higher. The thickness of the walls of dwellings seemed to vary as a rule from three to four feet; that of the enclosing walls was much greater, attaining sixteen feet at the base of the wall fragments of quite cyclopean appearance found at the site of Raji-kōt.

Ruined walls and terraces.

Both by their position and constructive features these ruined *kōts* of Darēl recalled to my mind the extensive ruined settlements of the Buddhist period with which I had become familiar during my explorations in the lower Swāt valley and in the hills on the northern border of the Peshawar District.[9] I found nowhere, it is true, that peculiar masonry associated with these ruins of Gandhāra and Udyāna in which the interstices between the rough stones are filled up by columns of small flat stones.[10] But if allowance was made for the much greater decay which these Darēl ruins had suffered, evidently under the influence of a climate far moister than that of the North-West Frontier, there was in other respects a striking resemblance.

Resemblance to ruins in Swāt.

As an interesting point of similarity I may mention that, as in the Swāt valley, in Bunēr and elsewhere on the confines of Gandhāra, so here the peculiar position occupied by the smaller fortified settlements suggested that it had been chosen not merely for the sake of greater facility of defence but also with a view to saving every available piece of arable ground for cultivation. Elaborate cultivation terraces were everywhere traceable over the adjoining slopes. Abandoned

Abandoned cultivation terraces.

[9] Cf. Stein, *Archaeological tour with the Bunēr Field Force*, pp. 5 sq.; *Archaeological Survey Report, N.W. Frontier*, 1912, pp. 4 sq.

[10] Cf. Foucher, *L'art du Gandhâra*, i. pp. 101 sq., with other references there quoted.

and covered with jungle, they bore clear evidence of the diminution suffered by the population of Darēl since those settlements were occupied. Of 'desiccation' such as might have taken place since that abandonment or possibly caused it, I saw no indication. In more than one instance, e.g. at Bojō-kōt and Tarōnalī-kōt, small well-kept irrigation channels were seen still carrying plenty of water past jungle-covered terraces to fields in the valley below. On the other hand I noticed that the present villages, whether open or walled, such as the central townships of Mankiāl and Samagiāl, all occupy ground that could be far more profitably used for cultivation if pressure of population required it.

Ramal-kōt. Tarōnalī-kōt.

I may now proceed to record briefly the ruined sites round Mankiāl in the order in which I was able to visit them. About half a mile to the south-east of Dalōt, on a rocky prominence overlooking the open valley ground occupied by the fields of Mankiāl, lies Ramal-kōt, a walled enclosure, roughly oval, its longer axis measuring about a hundred yards. Abundant fragments of pottery, proving prolonged occupation, lay among the walls of the ruined dwellings that filled the interior.[11] The top of a little rocky knob about a hundred yards lower down bears another walled enclosure, but smaller, known as Zhōmi-kōt (Fig. 20). Parts of the enclosing wall showed large roughly cut stone blocks up to four feet in length. Proceeding to the south-west along a small canal which skirts the steep slope of the Dalōt plateau and brings water from the mouth of the Shigo-gāh Nullah, I was next taken to the ruins of terraced dwellings known as Tarōnalī-kōt. They occupy the rocky side of an offshoot of the spur that descends from the Chilidār peak and flanks the Shigo-gāh valley. No enclosure was found here, nor was one needed in view of the natural strength of the position.

Site of Bojō-kōt.

Following the aforesaid watercourse, which is carried with much ingenuity along the precipitous rock slopes, we reached the ruins of Bojō-kōt about half a mile farther. They consist of a series of fortified dwelling-places occupying walled terraces along the narrow crest of a steep rocky spur. These terraces, twenty to thirty yards in width, rise in succession to a height of about 150 feet above the canal; and masses of debris from their ruined dwellings covered the steep slopes. The photograph (Fig. 19) shows the fine view opening from this point up the Shigo-gāh valley and at its mouth the rocky knoll which bears a similar group of ruins known as Shivo-kōt.

Remains of burials.

About 150 yards to the south-west of Bojō-kōt and on a level about 100 feet lower than its foot, I was shown a much-decayed terrace the top and slopes of which were covered with remnants of burned human bones mingled with fragments of roughly decorated pottery. On scraping the soil here with improvised implements we soon found evidence, in the form of beads, bits of glass and metal ornaments, that the place had served in pre-Muhammadan times as a burial-place for human remains which had previously been subjected to burning. A descriptive list of the specimens collected is given at the close of this section. From the condition in which many of these small objects were found it appears probable that they must have been picked up with the bone fragments from the funeral pyre. Others, such as the ornamented plaques in silver and the small amulet case, Dar. 02 (Plate XI), had probably been removed from the corpse before burning and subsequently deposited with the bone remnants in separate small receptacles. That these ordinarily consisted of pottery urns or the like could safely be concluded from the quantity of potsherds found in the soil and from the analogy of exactly corresponding finds at Buddhist sacred sites so wide apart as Shōrchuk and Sahri-bahlōl.[12]

No chronological indications.

No coins were found at the site, nor any other definite chronological indication. The ornamental motifs on the small metal objects, unmistakably evolved under the influence of Indian

[11] For a specimen, see below, p. 29.

[12] Cf. *Serindia*, iii. p. 1191; Stein, *Archaeol. Survey Report, N.W. Frontier*, 1912, pp. 13 sq.



23. CARVED SITTING PLATFORM WITH GREY-BEARDS OF CHATURKAND, DARĒL.



24. DECORATED WOODEN ENCLOSURE OF GRAVE, SAMAGIĀL, DARĒL.

25. RĀJA PAKHTŪN WALĪ'S CASTLE AT JAGLŌT, TANGĪR.
Mehtarjao Shāh 'Ālam seated in foreground.

art, are of a type that, like that of the Darēl wood-carvings to be presently mentioned, though of early origin, may have persisted unchanged for centuries. Of the approximate date when Muhammadanism was established in Darēl I was unable to learn any reliable tradition. No clear *terminus ad quem* can therefore be fixed for these remains; judging from what is known about the introduction of Islām in Gilgit and the neighbouring tracts,[13] I think it unlikely to have been much earlier than the fifteenth to sixteenth century. The local greybeards with me knew that the spot had been sacred to the 'Kāfirs', and told of a large carved stone slab which had been carried away from here years ago to the mosque of Chaturkand village and which was supposed to have been once worshipped as a 'Būt'. But they did not remember whether it was found at the burial-place itself or among the debris of a large structure the square walls of which could be traced on a terrace immediately below.

Legend of Matalōt waste.

That traditions of pre-Muhammadan times still linger in Darēl was proved by a piece of folk-lore connected with a 'site' that I passed on my way down to Chaturkand. About a mile to the south-east of Bojō-kōt and not far from the little village of Shigebal ensconced among the fruit trees, I was shown a stretch of waste ground covered with shapeless stone-heaps and known as Matalōt. It is supposed to mark the site of a village destroyed in ancient times by a hail of stones and boulders, owing to the anger of a snake-shaped divinity. Only one old woman and her daughter, who on that day had brought the divinity its appointed food offering, escaped the destruction of the night of punishment. It is clear that we have here a story of the revengeful Nāga so common to Indian lore of Buddhist times. The form which his revenge is supposed to have taken at once brought to my mind the old legend recorded by Kalhaṇa of the destruction of the town of Narapura, which Kashmīr tradition locates near Vij^ebrōr (Vijayeśvara) and ascribes to the Nāga Suśravas.[14] In that legend of the origin of the stone-waste of Ramaṇyāṭavi (Rembyār^e)[15] we have a close parallel to the interpretation which Darēl folk-lore has put upon the boulder-buried stretch of ground of Matalōt.

Villages of Chaturkand and Rashmāl.

A walk of half a mile to the east brought me to Chaturkand; this and Rashmāl, a mile or so farther north, are the largest of the Mankiāl villages.[16] Within a rough enclosure I found a thick cluster of relatively large houses, with rubble walls and gabled roofs in timber (Fig. 35). Chaturkand was said to number some two hundred families and presented quite the appearance of a small town, though many of its inhabitants were away in summer quarters near their holdings or on grazing grounds. The large stone slab from Bojō-kōt which I went to see at the mosque had been built into the open hearth of a kind of guest room adjoining the place of prayer and could not be fully examined. The exposed surface, nearly five feet in length, showed no carving. But in the timber ceiling above the hearth I was interested to note exactly the same arrangement of successively reduced squares which I had occasion to observe, in the course of my second journey, in the architecture of old Chitrāl and Mastūj dwellings and of which we find the prototype preserved in stone in the ceilings of temples both in Gandhāra and Kashmīr.[17]

Decorative wood-carving.

The pillars supporting the ceiling showed rough but vigorous relievo decoration, of which I subsequently found numerous examples elsewhere, in the ornamental wood-carving of mosques,

[13] Cf. Biddulph, *Hindu Koosh*, pp. 134 sq.

It deserves to be noted that according to information recorded by Biddulph, *Hindu Koosh*, pp. 113 sq., burning of the dead appears to have been practised by Dard people, in some of the more remote valleys at least, 'till a very recent period'. See also Drew, *Jummoo and Kashmir*, p. 429; *Ruins of Khotan*, p. 24.

[14] See my note on *Rājat.* i. 201–2.

[15] Cf. my note on *Rājat.* i. 263–5.

[16] The local name Chaturkand or Chaturkan is found also elsewhere in the Hindukush region; it is borne *e.g.* by a village in the Ashkūman valley and by another in Nagar, above the Hunza river.

[17] Cf. *Serindia*, i. p. 48 (Figs. 15, 16); iii. Pl. I; Foucher, *L'art du Gandhâra*, i. pp. 143 sq. I noticed similarly arranged ceilings also in houses in Yāsīn (see below, pp. 44 sq.) and in Roshān.

houses and graves. The sitting platform (Fig. 23) outside the gate of the enclosing wall, which serves as a favourite gathering-place of the greybeards of Chaturkand, the fine panelled shrine at Dodō-kōt (Fig. 28) and the elaborately decorated wooden enclosure of a grave outside Samagiāl, reproduced in Fig. 24, may help to illustrate this local craft. A number of the prevalent motifs, including the four-leaved clematis-like flower within a rectangular or round frame, the scrolls of half-open lotus buds or twining vine-leaves, seemed to me directly derived from relievo ornaments common in the Graeco-Buddhist art of Gandhāra. Both in design and style of work they recalled the decorative wood-carving on various architectural or domestic objects that I had excavated in the sand-buried ruins of the Niya and Lou-lan Sites.[18] I deeply regretted that time was not available for a closer study of these Darēl carvings and for similar antiquarian research.

Descent towards Rajī-kōt.

From Chaturkand I moved down the open ground in the middle of the valley towards the old site of Rajī-kōt. The rocky hill that it occupies, an almost detached offshoot of the high spur flanking the Bachai valley on the north, forms a conspicuous landmark, as seen in the photograph Fig. 18, where it appears in the distance above Mankiāl. After descending by the road for over a mile I was shown on steep cliffs by the mouth of a side valley westwards the ruined terraces and walls of Bodō-kōt and Diwāri-kōt, but was obliged to pass them unvisited. We reached Galī-kōt after crossing another mile or so of fertile ground where, however, the fields are sown only at intervals, obviously a mark of under-population and inadequate labour. The ruins, of only moderate extent, found at Galī-kōt were of the usual type and occupied the extreme northern offshoot of the Rajī-kōt hill. Ascending towards this over boulder-strewn ridges south-westwards we everywhere passed terraces built up of big blocks of stone and completely overrun by scrub. Of the irrigation channels which once must have brought water here from the Bachai stream no trace could be found. At a point known as Ranōt I came, to my surprise, upon a narrow perfectly levelled strip of ground, embedded between two low rocky ridges, which according to local tradition was used as a polo ground in old times when Rajī-kōt was the residence of the 'Rās' or kings of Darēl. The tradition is all the more curious that the practice of the noble game so common in all the Dard valleys from Astōr to Chitrāl has completely disappeared from Darēl. Nor does it appear now to be known in Chilās and the other Kōhistān communities down the Indus.

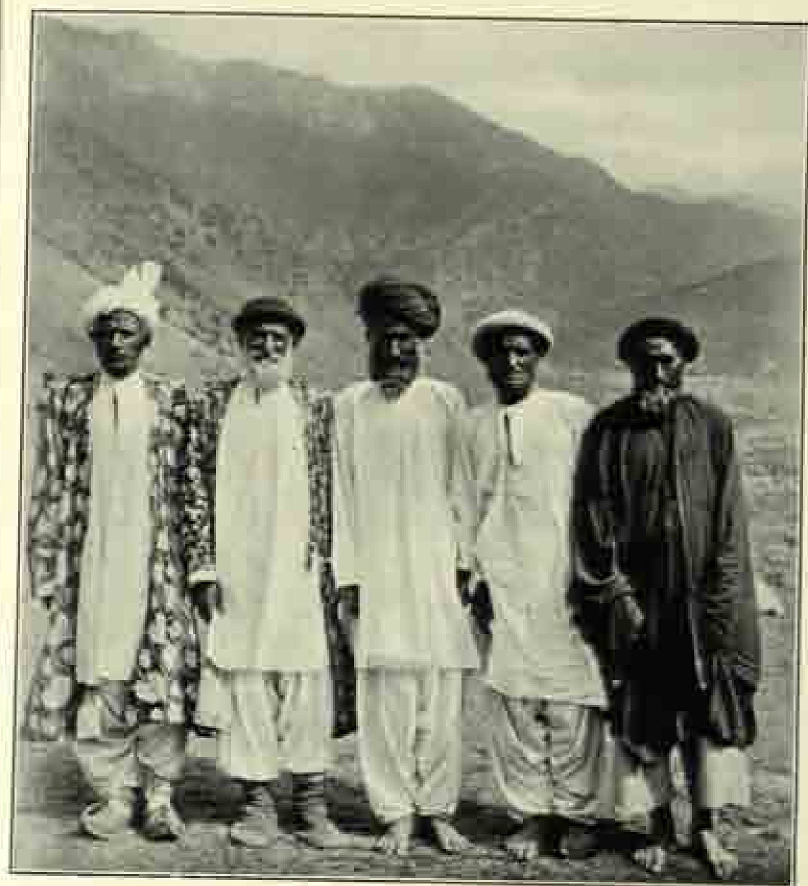
'Darband' of Ranōt.

A little above Ranōt we struck a steep ridge which, running NNW. to SSE., connects the Rajī-kōt hill with the spur above the Bachai valley. Its slopes were covered with a thick growth of old Ilex, while along the whole length of its bare and narrow crest there extended the ruinous remains of a massive wall which my guides spoke of as a 'Darband' or *chiusa*. It was evident that it had been intended primarily for this purpose of closing the valley west of Rajī-kōt and protecting the flank of the latter. But the 'Jyeshtēros' or headmen of Mankiāl accompanying me volunteered the further information that the wall was intended also to safeguard an earthen pipe line laid underneath it, which had once served to carry water from the Bachai stream to the ruined fort on the top of the Rajī-kōt hill. No trace of this pipe line could be seen where we followed the crest, nor had I time to make a search for possible remains. But considering that the use of water pipes or underground conduits appears to be now quite unknown in Darēl the statement is of distinct interest, whether it be based on tradition or on some actual find. As the fortified top of Rajī-kōt rises considerably above the crest of the connecting ridge just described it is obvious that no water-supply could have been brought to it except by the means just indicated.

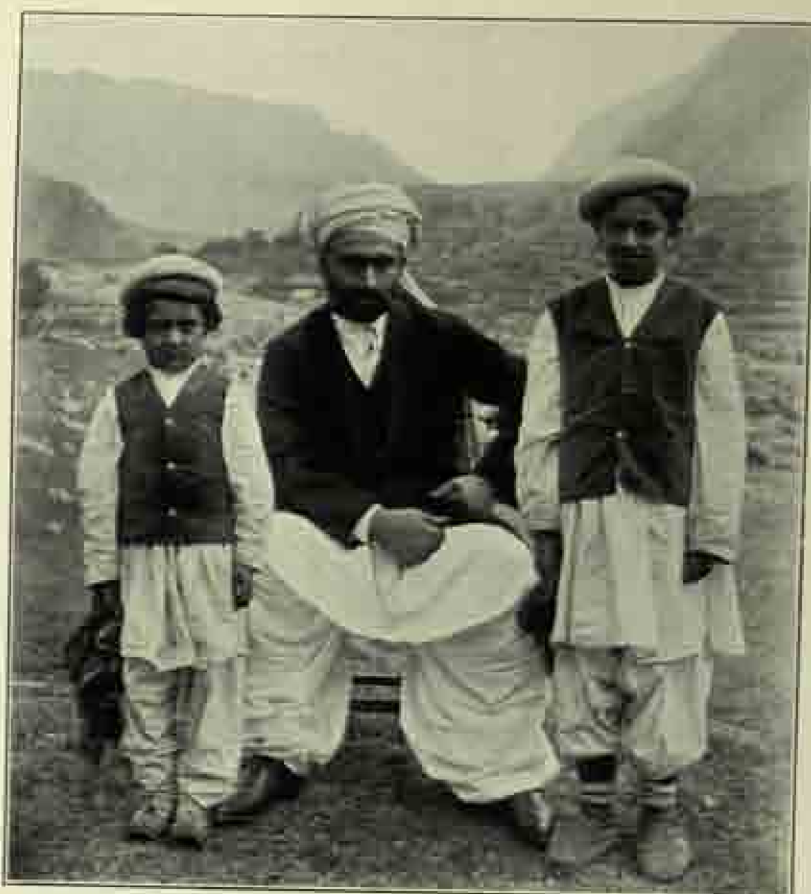
Remains on Rajī-kōt hill.

The hill-top, which, as seen in Figs. 21, 22, is fairly clear of vegetation, lies about 5,680 feet above sea-level and rises probably about 500 feet above the river bed at its east foot. On reaching

[18] Cf. e.g. details in Fig. 23 with carvings of the Niya Site, *Serindia*, iv, Pl. XVIII, XIX; those in Figs. 24, 28 with Lou-lan motifs, *Serindia*, iv, Pl. XXXI.



26. DARĒLĪ HEADMEN IN ATTENDANCE AT GUMĀRE-KŌT.



27. RĀJA PAKHTŪN WALĪ WITH TWO OF HIS SONS.

28. WOOD-CARVINGS AT ZIĀRAT OF DODŌ-KŌT, DARĒL.
Standing within arcade is Shahīd of Pāpat (see p. 16).

it I first observed, on a slightly lower shoulder northward, the much-decayed remains of a small fort-like enclosure, measuring about thirty yards from east to west and somewhat less across, built of rough blocks quite Cyclopean in appearance. The wall eastwards was over sixteen feet thick at its base. The amount of debris and earth which in most places overlies the ruin of this outwork left no doubt in my mind about its antiquity. Ascending to the crest of the hill I had before me the very well preserved walls of a manifestly recent circumvallation, extending for about 170 yards from north to south with an average width of only 30–40 yards. I was told that it was built by the Mankiāl people within the present generation for the purpose of warding off invasion from the south, which was apprehended at the time when Chilās was brought under control in 1892. The good condition in which the walls, in spite of their very rough construction, are found to-day supported the statement. The modern fort appears never to have been completed. In any case the small size of the stones used, as seen in Fig. 22, made it easy to distinguish its outline from the walls of a far larger and manifestly ancient circumvallation traceable on the slopes below, and also from the remains of the dilapidated dwellings that cover the area thus enclosed.

The walls of the old fort, though built of large stones, had in most parts, owing to the steepness of the lower slopes which they crowned, to a large extent crumbled away. Their remains, rising now nowhere to more than four or five feet above the surface of the ground, could be traced most easily for about 250 yards along the south face and for about 170 yards northward from the south-east corner. The remains of walls of similar material that belonged to interior structures occupying easier slopes had suffered less decay. The general impression I gained during my rapid survey of the Rajī-kōt site was fully in accord with the local belief that it marked the fortified residence of the ancient rulers of Darēl, a belief to which the very name *Rajī-kōt* lends support. The position must have specially recommended itself for this purpose on account of its natural strength, the relatively large space available on the hill-top, and also because it completely commands the narrow neck-like portion of the valley which intervenes between the two main cultivable areas, viz. Mankiāl in the north and Samagiāl in the south. Commanding position of Rajī-kōt.

It was probably the advantage of this central position dividing the two largest communities of the valley and thus facilitating their control which had induced Rāja Pakhtūn Wālī to choose the small open plain at the south foot of Rajī-kōt for the castle he was building as his place of residence in the newly annexed territory and as a stronghold to safeguard its possession against possible risings. The site had long ago gone out of occupation, and even the rich land at the mouth of the Bachai valley westwards had only recently been brought again under cultivation. There, in the open court of the as yet unfinished castle of Gumāre-kōt, Rāja Pakhtūn Wālī received me in full state. The high walls of the enceinte, turreted at the four corners, seemed to be copied from the old strongholds that had long sheltered the rulers of Chitrāl and Mastūj, members of rival branches of the Rāja's race, during centuries of strife and bloodshed. Stronghold of modern ruler of Darēl.

It was to me an interesting experience, welcome both on personal and historical grounds, to meet Pakhtūn Wālī. After a chequered career that befitted the son of Mīr Wālī—ruler of Yāsīn, murderer of Hayward and finally a fugitive—he had succeeded in building up a new kingdom for himself, the most recent that India has seen raised on the old adventurous lines, and perhaps the last for the time being. Rāja Pakhtūn Wālī, if (Fig. 27) not a man of imposing build, yet in expression of face and in bearing appeared the shrewd and energetic chief that his success proclaimed him. Though he looked relatively young for his age, then about forty-six years, there was no mistaking in his features the traces of anxious periods of struggle and intrigue. He generally wore an air of reserve in which suspicion and cunning were combined; nevertheless, in his unguarded moments, I thought I caught glimpses of genuine *bonhomie*. When speaking of his young sons, Meeting with Rāja Pakhtūn Wālī.

for whom he was anxious to secure an undisturbed succession to what he had won by craft and unscrupulous violence, his features always seemed to soften in a manner that compelled sympathy. That he could command genuine attachment and devotion from those whom he employed round his person or used as the confidential instruments of his policy, was apparent from much that I noticed or heard. He evidently took care to keep on good terms with the priestly element, the Saiyids and Mullahs, in view of their influence both in Darēl and Tangīr. But though he, no doubt, might have been prepared to use fanatical feeling if it served his ends, yet it seemed to me that the Mullahs neither individually nor collectively were allowed much weight in Pakhtūn Wālī's inner councils.

Physique and character of Darēlīs.

In the strange medley attending on the Rāja, which seemed to call up times and methods of rule long gone by, Darēlīs were evidently still kept much in the background. Yet to me their elders and headmen (Fig. 26) were figures of distinct interest. They appeared to represent certain features of the racial type of the Darēl population in a specially characteristic fashion. This racial type in its general aspects, as far as I could judge without anthropometrical observations, for the collection of which there was no time, seemed to me unmistakably akin to that of the other Shiṇā-speaking Dard tribes that occupy the adjoining mountain territories. Yet the refinement frequently noticeable in the features of the men and their less heavily built frame suggested inheritance from a more developed civilization, but one that had been decadent for many generations. The weakening effects of such descent and of a long period of anaemic anarchy, such as is generally supposed to have prevailed in Darēl previous to Pakhtūn Wālī's advent, seemed best to account for that want of vigour which struck me in the physique and mentality of Darēlīs. I received the distinct impression that theirs was a race subject to the inherited instincts of town-bred folk and needing a strong ruler.

Aims of Rāja Pakhtūn Wālī.

There was much to claim my interest in what I heard from the Khushwaqt chief that evening and during the long return visit he paid me next morning in my camp pitched by the Gime-gāh stream not far off. But there is no need here to record details. He was manifestly anxious to effect material improvements after the model of those to which British influence is slowly opening the way in the tracts controlled by the Gilgit and Chitrāl Agencies. Perhaps he rightly hoped that the making of roads practicable for laden animals, instead of the goat tracks that connect the valleys under his rule, and similar facilities for trade and intercourse, would make his subjects more ready to forget their former independence. In any case there was more hope of his securing the required engineering implements and other assistance from the British Political authorities than the supplies of modern arms and ammunition on which his desire was set. To the great openings for increased agricultural production and to the possibility of developing the important natural resources of Darēl and its adjoining valleys eastward Rāja Pakhtūn Wālī seemed to be fully alive. It did not surprise me to learn, years later, that he had since my visit spent much energy on making roads convenient for laden traffic and on endeavours to attract new settlers to waste areas in Darēl and Khanbarī.

End of Pakhtūn Wālī and his kingdom.

He had spared no care nor trouble to facilitate my safe passage through his territory and to make it as profitable as the strict limitation of my time permitted. So it was natural that I should carry away from my Darēl visit warm gratitude for the friendly welcome accorded to me and a genuine and sympathetic interest in its ruler. This feeling prompts me to record here in all briefness the sad end of Rāja Pakhtūn Wālī's life and kingdom. The years following my visit had seen a wise diversion of his policy from further expansion and conquest to the peaceful consolidation of his territory by means of improved communications, trade facilities, &c., as well as by closer relations with the Gilgit Agency. However, old hatreds were kept awake by the remembrance

of many a bloody deed and, as far as Tangīr was concerned, probably also by a genuine love of the former turbulent independence. So in the winter of 1917 a conspiracy hatched in Tangīr proved successful, and Rāja Pakhtūn Wālī was cruelly murdered with an axe while watching the construction of a mosque at Lurg. With his life the chiefship also came to a sudden end. The Tangīrī tribesmen, with the Gabar-khēl to the fore, at once plundered and burned down Pakhtūn Wālī's old stronghold at Jaglōt (Fig. 25). Gumāre-kōt was then attacked and sacked by the Darēlīs, who are said to have razed its walls to the ground. The Rāja's wives, children and near relations, including Mehtarjao Shāh 'Ālam, were forced to flee to independent territory westwards, where most of them live now in Kandia as hapless refugees subsisting on charity. The story is of a type familiar in the history of these regions. But I am glad to have known its chief actor.

LIST OF OBJECTS COLLECTED IN DARĒL

OBJECTS FOUND AT BOJŌ-KŌT BURIAL-PLACE

Dar. 02. Silver charm case, square with two loops at lower edge, to which is attached a chain of fine wire suspending a semi-sphere. Pattern in repoussé on sides; within bead border, a four-petalled rosette and scrolls. Wire of chain appears to be drawn. Perished and broken in four. 1″ sq. when whole. Pl. XI.

Dar. 03. Copper charm case, similar to Dar. 02, but loops and chain missing. Corroded. 1″ sq. Pl. XI.

Dar. 04. Fr. of silver armlet. Wide band of thin sheet silver, with three raised ribs, and transverse band of simple incised orn. at end. Deeply oxidized. Length 2″, width 1⅜″. Pl. XI.

Dar. 05. Pottery spinning whorl, in form of two cones joined at bases and truncated at ends. One end longer than the other; pierced with large hole vertically. Grey clay. Diam. 1″, H. ⅞″.

Dar. 06. Fr. of silver orn. Upper end, a square wire bent into hook. This broadens downwards into flat band, on front of which is heart-shaped palmette of twisted cable wire, to one loop of which hangs short, very thin wire strung with four minute glass beads, two green and two white. Below this, also on face of band, is heart-shaped cell setting for jewel (missing). Band terminates below in a loop, with fr. of wire suspended. Oxidized. Length 2½″, gr. width 7/16″. Pl. XI.

Dar. 07. Frs. of iron chain, with 8-shaped links, one limb being twisted at right angles to the other. Some parts corroded together. Brittle. Links 11/32″ × 5/16″. Pl. XI.

Dar. 08. Eight cowries, drilled for threading, and one stone bead.

Dar. 09. Twelve glass and paste beads. Two are composed of several fused together. Colours chiefly blue and green. Gr. M. (fused) ⅝″.

Dar. 010. Misc. metal rings and frs. of various kinds, including one finger ring with large cup-shaped setting for jewel. Poor condition. R. finger ring diam. 15/16″; diam. of setting ⅝″. Pl. XI.

Dar. 011. Three stone beads: one cornelian, lozenge-shaped; one pinkish-white pebble, lozenge-shaped; one bluish pebble, barrel-shaped. Gr. length ⅞″.

Dar. 012. Misc. frs. of bronze and lead. Gr. M. (fr. of ring) 2¼″.

Dar. 013. Misc. frs. of glass beads, &c., pebble, crystal and teeth. Gr. M. 13/16″.

OBJECT PRESENTED BY RĀJA PAKHTŪN WĀLĪ

Dar. 01. Arrow, with cane shaft (broken) and wrought-iron head. Head triangular in section, with sides somewhat concave; barbed. Whipping of gut at this end, and traces of lacquer and feathers at other. Good condition. Length of whole 2′ 6½″, length of head 2½″.

SPECIMENS OF POTTERY FROM KĪNO-KŌT AND RAMAL-KŌT SITES

Kino-kōt. 01. Fr. of pottery vessel. Hand-made (?). No orn.; moderately good clay, not well washed. 2¼″ × 1¾″ × 5/16″.

Ramal-kōt. 01. Fr. of pottery. Hand-made; coarse grey clay, red-burning. No orn. Gr. M. 2″.

Section V.—THROUGH LOWER DARĒL AND TANGĪR

Site of Mazār-kōt.

On August 18th I proceeded from Gumāre-kōt on my way down the main Darēl valley. Before crossing the river to the left bank, where most of the cultivated area in this part is situated, I paid a visit to the mouth of the Nullah known as Gīme-gāh. There above the decayed walls of a village site called Mazār-kōt I was shown a spot which, according to the tradition of the Samagiāl tract, was held sacred in pre-Muhammadan times and is known by the name of *Gīme-deo*. A rough stone slab standing upright to about four feet from the ground was said to have been an object of worship. Close by to the north was a confused heap of rocks, evidently brought down by a landslip; we were told that it had destroyed in its fall two large earthen images of 'Būts' which are believed to have somehow survived until a few generations ago.

Abandoned cultivation terraces.

Moving south from here we passed a great deal of ground with abandoned cultivation terraces. On the top of a plateau said to have been irrigated until some fifty years ago I found the remains of a walled enclosure of the usual type, known as Dukē-kōt. A fine view was obtained from this plateau over the rich village lands of Samagiāl southward. But above them on the left bank of the river it also included extensive terraced slopes which irrigation no longer reaches. Nothing was remembered of the canals which once had carried water to them. But that their abandonment could scarcely be ascribed to want of water became clear when we crossed the river by a bridge below Gumāre-kōt; for its volume, as measured here, proved over a thousand cubic feet per second.

Villages of Samagiāl.

While following the canal that irrigates the main portion of the Samagiāl lands (carrying about twenty cubic feet of water per second), I had occasion to note the remarkably solid construction of the embankment that carries it. The sight of the fine trees planted along it carried the mind back to Europe, and their size testified to the antiquity of the canal alignment. Samagiāl was found to contain two populous and compact villages, Birō-kōt and Dodō-kōt, situated about a mile from each other. The second, near which also stands a large fort constructed about the same time as the new circumvallation of Rajī-kōt, presented, with its closely packed houses (Fig. 36) and several places of worship (Fig. 28), the appearance of a small town. The estimate of 540 households given to me for Samagiāl could scarcely have been much exaggerated.[1] At a fine Ziārat situated in a shady grove by the river below Dodō-kōt I was particularly struck by the presence in the bold wood-carving of ancient decorative motifs with which I was already familiar from Graeco-Buddhist relievos, including the acanthus leaf, lotus, Stūpa and what I took to be a derivative of the 'Buddhist rail'.

Poguch and its shrines.

Below Dodō-kōt the valley contracts, and no cultivation is met with until the rich terraced fields of Poguch are reached, some two miles lower down. The luxuriance of the fruit trees and vines among which its homesteads are scattered, bore witness to its fertility and sheltered climate in contrast to the barrenness of the lower hill slopes around. But what interested me specially at Poguch were its shrines, the most renowned throughout Darēl. Passing down between shady orchards to the left bank of the river I visited first the Ziārat known as *Moyubaike*, where a large grove of old trees shelters the graves of six brothers of Shāha-khēl Bāba, who is the chief object of worship at Poguch. All I could learn about them was that the brothers were holy men who shared in the martyrdom of Shāha-khēl Bāba.

Ziārat of Shāha-khēl Bāba.

The sanctuary of the saint himself lies at the mouth of a stony Nullah on the other side of the deep-cut river and about 200 feet above it. Apart from several structures serving as places

[1] The other figures relating to the number of households communicated to me by Mehtarjao Shāh 'Ālam for Darēl were as follows: Mankiāl including Rashmāl and Chaturkand, 510; Poguch, 140; Gayāl, 500. The total number of families then in permanent occupation of land in the valleys of Dudishāl and Khanbarī was believed to be less than a hundred.

29. OLD MOSQUE AT PRŌRĪ, TANGĪR.
Mullah standing in front; row of religious students on right; men-at-arms on left.

30. ZIĀRAT OF SHĀHA-KHĒL BĀBA, BUILT IN CARVED TIMBER, POGUCH, DARĒL.

of prayer and of accommodation for pilgrims, we found there a Ziārat wholly built in carved timber and believed to mark his grave (Fig. 30). The legend I heard at the site tells of Shāha-khēl Bāba as a holy man who came from Swāt to convert the heathen and show them the path which leads to bliss in Muḥammad's Paradise. He was a 'Chishti' and much rejoiced in music. In the course of his pious wanderings he was killed at Poguch by the 'Kāfirs', who cut off his head and carried it hundreds of 'Kōs' down the Indus valley. But miraculously the head flew back through the air and rejoined the martyr's corpse. By this proof of his holiness he converted the Darēl people to the true faith and has ever since been worshipped at the place of his death as the most effective protector of the pious who need help. His shrine is certainly the best known in Darēl and the valleys immediately adjoining it. We were told that, on account of the saint's miraculous powers, it was visited by pilgrims from places as far as 'twenty days' journey' all over the Indus and Swāt Kōhistān and elsewhere in the Hindukush mountains.

Location of miraculous Maitreya image.

In view of what we know from other sources of the continuity of local worship in these regions,[2] we may be justified in looking upon Poguch as the most likely site of that colossal image in wood representing Maitreya Bodhisattva which the above-quoted accounts of Fa-hsien and Hsüan-tsang mention as a special object of worship in what is now Darēl. The material and the size of the image as they describe it are both in keeping with what we now know of the magnificent timber of the valley. If it was gilded all over, as Hsüan-tsang's notice seems to imply, its complete disappearance is still more easily accounted for. Whether the proposed identification can also be supported by philological indications is a matter on which, in views of my lack of special qualifications, I can only venture to touch with hesitation in the note below.[3]

Ruins of Lohilo-kōt.

The view from Shāha-khēl Bāha's Ziārat had shown the increasing barrenness of the lower slopes of the valley, suggestive of the vicinity of the Indus gorge and changed climatic conditions. So I was not surprised, when proceeding below Poguch along a narrow plateau which rises steeply to a height of some 400 feet above the left bank of the river, to find that it was almost bare of vegetation and the ruined fort crowning its highest point built of stamped clay. The use of such material clearly indicated that this ground received little of the abundant moisture enjoyed by the higher portion of Darēl. The walls of *Lohilo-kōt*—the 'Red Fort', a name derived from the reddish hue of the clay—were for the most part badly decayed, but in places still stood to a height of over ten feet (Fig. 16). They enclosed a rectangle about 174 feet long from NNW. to SSE. and 115 feet across. There were remains of corner bastions, about twelve feet square, and indications

[2] Cf. my *Note on Buddhist local worship in Muhammadan Central Asia*, *J.R.A.S.*, 1910, pp. 839 sqq.; also *Serindia*, i. pp. 41, 71, and iii. p. 1546 (Index).

[3] As regards *Poguch* I may call attention to the fact that the second portion of the name may contain the same word *-guch* as is found in the designation *mahajālu-guch* which I heard applied at Charrun in Mastūj to a place with remains of Buddhist worship. It was there interpreted to me as meaning 'the sacred corner'; cf. *Serindia*, i. p. 41.

As the Khōwār of Mastūj and the Shiṇā of Darēl are closely allied Dardic languages the word *guch* may be assumed to be in both of identical origin and meaning. With reference to the first portion *Po-* the conjecture might be hazarded that it represents the phonetic derivative of *Buddha*. The tendency to harden original unaspirated sonants ($b > p$, $g > k$, $d > t$) into mutes, both at the beginning and in the middle of words, is well attested in the Dardic languages; cf. Grierson, *The Piśāca languages*, pp. 96, 110, 116.

[In view of such forms as Shiṇā *puch*, *push*, also Gārwī *pūch*, Shighnī *puch*, 'son', derived from Aryan *putra*, the question deserves consideration whether *-guch* may not be an alternative form for Shiṇā *gōsh*, *gōzh* (connected with Skr. *gotra*), meaning 'house'; cf. Grierson, *ibid.*, p. 107.]

I feel on still more dangerous ground as regards the name *Moyubaike*, applied to the lower Ziārat. But as apocope of original *tr* is well known in Dardic languages (cf. Grierson, *ibid.* p. 107), it would be quite possible to recognize in *Moyu* a direct phonetic derivative of *Maitreya*. The fact that the extant local legend points to that site as the resting-place of the brothers of the chief saint might suggest a connexion between *-baike* and the Dardic word for 'brother' (Skr. *bhrātar*, Avestic *brātar*) which appears in such forms as Kalāshā *bāya*, Kashmīrī *bāyᵘ*, Veron *wayeh*. But it must be noted that in Shiṇā the word presents itself as *prā*, *zhā*; see Grierson, *loc. cit.*, p. 107.

that the gate stood near the middle of the east face. The walls were built on foundations of rough but solid stone-work and showed a thickness of close on three feet. Their antiquity was proved by the fact that the timber pieces inserted for strengthening the walls had completely perished away, leaving only their sockets. There could be no doubt that the small fort was built to close the approach to the valley, the left bank of the river being completely commanded by it.

Village of Gayāl.

A steep descent to the river and about a mile and a half's progress along it brought us to Gayāl. This populous village occupies the right bank of the river at the point where its largest tributary joins it from the Gayāl-gāh valley. Here at an elevation of about 4,600 feet and within about five miles from the Indus the warmth of the evening was oppressive. With its high massive walls crowning a small spur and its large mosque decorated with fine wood-carvings, Gayāl presented a townlike appearance. The terraced land around is famous for its abundance of grapes, reputed the best in Darēl and largely used for the production of wine. This is stored for years here and in other villages of Darēl also, and as subsequent information showed, its consumption continues more or less openly in spite of the Mullahs' efforts.[4] The long Gayāl-gāh valley, too narrow to permit of much cultivation, appears to contribute greatly to the affluence of the Gayāl people by the abundant grazing grounds at its head.

Ascent to Shardai pass.

The arrangements made for my further progress admitted of no closer inspection of this side valley. In order to avoid the confined Indus gorge where the great summer heat would have necessitated marching by night and where there was little chance for survey work over a wider range, I readily accepted the proposal to make our way into Tangīr by the only other practicable route, leading across the Shardai pass. For this we had to start soon after the midnight following our arrival at Gayāl, as the precipitous track which ascends westwards to the high rugged spur dividing Darēl from Tangīr proved very trying for our porters and they could not at this season have managed its exposed lower portion in the daytime. After a mile's progress in the valley the deep Gayāl-gāh stream was crossed by a bridge, and then began the ascent in zigzags over steep stony slopes, which up to an elevation of over 7,000 feet were absolutely bare. About a mile above the valley bottom the track led past another 'chiusa' known as *Lohilo-kōt* and intended to guard this route into Darēl. The rectangular enclosure of stamped clay walls measured outside about 183 by 262 feet. Its condition and constructive features pointed to an origin contemporary with that of the other Lohilo-kōt; but here the bastions, 12 feet square, at the NE. and SW. corners were built of rough stones of large size.

Views from Shardai pass.

After passing a zone of Ilex growth the path, extremely steep throughout, at about 8,000 feet entered a forest of scattered Deodars. At last the hard climb of more than five hours brought us to the top of the narrow ridge which the pass crosses at an elevation of 10,050 feet. There grand vistas opened before me. From an isolated rocky pinnacle to the south of the pass there opened extensive views towards Darēl, Tangīr, the Indus valley and the ranges beyond. Directly facing us stood the big glacier-crowned range, rising to peaks close on 20,000 feet in height, which bounds Tangīr on the west. To the west-south-west I saw clearly, though still some twenty miles away, the gap through which the Indus makes its sharp bend to the south, between precipitous snow-capped spurs, rising some 13,000–14,000 feet above it. Access to this famous gorge, where the bed of the mighty river is reported to contract into an exceedingly narrow cañon, is closed by independent territory belonging to the tribal communities of Kandia on the north and of Seo on the

[4] A custom prevalent throughout Darēl and enforced with great stringency serves to illustrate the importance which the Darēl people attach to their wine and the care taken to safeguard its quality. The picking of grapes, even by the owners of the vines, is prohibited under heavy penalties until a particular date fixed separately by the 'Jirgah' of each community and proclaimed with the beating of drums. Those who offend against this law in however small a measure are punished with great severity. The custom has its close analogy in many old wine-growing parts of southern Europe.

south. Even from afar European eyes saw it then for the first time. I wondered when the time would arrive for exploring those Indus gorges, where the old Chinese pilgrims made their way south 'by hazardous paths through gloomy gorges, crossing bridges of ropes or iron chains, across bridges spanning precipices, or climbing by means of pegs for steps '.[5]

Descent into Tangīr.

The descent from the pass to the Tangīr river was a trying experience; for after leading for a mile or so over slopes covered with magnificent Deodar forest the path dropped down along bare precipitous cliffs and over vast shoots of rock debris. Not until we had done nine hours of continuous climbing was the first water met with above the village of Shēkho. Below, on the opposite side of the valley, the large villages of Diamir and Lurg could be seen spreading their terraced fields over wide alluvial fans watered by snow-fed streams. Beyond a rocky defile, through which the Tangīr river has cut its way down to Shēkho village, the valley bottom opened out into a wide fertile basin occupied by the scattered hamlets of Rim and Jaglōt. Amidst the fields of the latter place Rāja Pakhtūn Wālī's stronghold rose close to the right bank of the river (Fig. 25), and there a very pleasant reception awaited me. The fort had been much enlarged since the time when the original modest structure, which he occupied as a refugee from Chitrāl, witnessed a memorable siege. The powerful Gabar-khēl tribesmen who hold the upper portion of Tangīr had then vainly tried to rid themselves of their ambitious exile-guest. Their defeat at this spot marked the first stage in Pakhtūn Wālī's rise to power.

Physical conditions in Tangīr.

My passage through the permanently occupied portion of Tangīr had for practical reasons to be restricted to two days. Yet it sufficed to show me on the one hand the close similarity in fertility and natural resources that exists between Tangīr and Darēl, and on the other a marked difference as regards the character of the population and its ways of living. The practically continuous area of cultivable ground that extends from Jaglōt to the last hamlets above Dobats is scarcely less in extent than the area available in the main Darēl valley. The climatic conditions prevailing between these two points, situated at an elevation of about 6,000 and 7,500 feet respectively, are approximately the same as between Gumāre-kōt and Nyachūt. The water-supply available for irrigation is manifestly greater in Tangīr; for the streams feeding the Tangīr river from the west and north drain mountains which are not only higher than those surrounding Darēl but also carry considerable beds of permanent snow and glaciers. This abundance of water is proved by the volume, over 2,100 cubic feet per second, which I measured in the Tangīr river where it passes below the bridge of Jaglōt.

Timber exploited in Tangīr.

The large size of the river represents an important factor in the exploitation of the magnificent forests that cover all the slopes of the valley from an elevation of about 7,500 to 11,000 feet; for it permits the timber to be floated in huge logs to the Indus, and thus adds to the value of this great economic resource of Tangīr. At the time of my visit, it is true, I found great masses of timber wedged in the gorge through which the river passes below Jaglōt. But the flood from the melting snows of the next spring and early summer was expected to clear off all this accumulation and carry it safely to the distant plains about Attock. There can be little doubt that in ancient times, as now, Gandhāra and the territories lower down the Indus must have drawn their supplies of timber largely from Tangīr and Darēl. The exploitation of these forests formed an important source of revenue to Rāja Pakhtūn Wālī and was exclusively in the hands of Kāka-khēl traders and their agents from the famous Ziārat near Nowshera in the Peshawar District. They alone, owing to the sanctity enjoyed by their clan, are able to carry on this business, here as also on the Swāt river head-waters, in tracts too dangerous for others.[6]

[5] See Watters, *Yuan Chwang*, i. p. 239.

[6] The true origin and history of this remarkable Kāka-khēl community well deserves investigation by a critical student familiar with the North-West Frontier. The com-

Character of Tangīr population.

Though in language and racial descent there is probably little, if anything, to distinguish the Tangīrīs (Fig. 39) from their eastern neighbours, yet I noticed marked differences in the character of the population. The most striking, perhaps, is the fact that throughout Tangīr the population lives scattered in clusters of hamlets and isolated holdings. Of those large villages resembling townships in which the Darēl people now congregate, at least for a great portion of the year, there are none to be found in Tangīr. Nor could I hear of ruined sites corresponding to those fortified villages or 'kōts' in which the Darēlīs seem to have sought shelter ever since early times. What dwellings and canals I saw all appeared of distinctly ruder construction than most of those seen in Darēl. On the other hand I noted a distinctly more manly bearing in the people and, as the result probably of a natural reaction against the new régime, a sullenness of temper quite absent among the meeker Darēlīs. Though Pakhtūn Wālī's power had been established in Tangīr far longer, yet the strength of smouldering animosities was manifest. This accounted for the increased care with which our ever-watchful escort safeguarded us from any attempt on the part of their chief's oldest subjects—and foes. Thus flanking parties were conspicuous as we moved up the valley on August 20th. To what extent the Tangīrīs' reputation for greater valour and turbulence is connected with the spirit of fanaticism with which they are also credited I am unable to judge. But it is certain that the easy disregard of the Islamic prohibition against wine that prevails throughout Darēl is unknown here. Nor could it escape me that the defiant attitude of the numerous religious students we found gathered round a famous Mullah at the old mosque of Prōrī (Fig. 29) at first threatened to cause a fracas with our escort.

Upper Tangīr valley.

As we moved up the valley above Kāmī, all of it held by Gabar-khēls, I noticed much fertile ground between the fields once probably cultivated but now overgrown by scrub and Ilex jungle. Before reaching the clustering hamlets of Prōrī and Pāpat, we passed the side valley of Darō-gāh, up which a track leads into upper Gayāl-gāh and thence to the main Darēl valley. About three miles farther we reached Dobats, where the large side valley of Kachilō-gāh comes down from the west. Through it access can be gained to the Gabriāl valley at the head of the as yet unexplored hill-tract of Kandia. Close to the junction of the Kachilō-gāh and the main river coming from Satil, I found the crest of a rocky eminence occupied by a small ruined fort, known as Birnao-kōt (Fig. 33) and probably intended to guard the route from the north. Its remains did not look very old. A little over a mile above this point, at an elevation of about 7,500 feet, we passed the outlet of another large valley, the Maichar-gāh, coming from the west. Its stream seemed as large as that of the main valley, which our track continued to follow to the north and which from here onwards is known by the name of Satil.

Wood-cutting in Satil.

A magnificent forest of pines and firs extends right down to the bottom of the valley, which is wide and occupied by gently rising wooded plateaux (Fig. 34). Here timber-cutting had during recent years been carried on extensively and big clearings had been made. At the end of that day's march, after passing through glorious sylvan scenery, we arrived at the camp of Miān Shāh-zāda, a Kāka-khēl from Ziārat and uncle of my surveyor Afrāz-gul. For years he had been in charge of the wood-cutting operations that Kāka-khēl contractors were carrying on in this great forest belt, employing hundreds of Pathān and Kōhistānī hillmen from Upper Swāt and the independent tracts on the Indus. It was his opportune intercession that had helped to overcome Rāja Pakhtūn Wālī's original scruples about my passage through this territory. Shāh-zāda had undertaken to keep all fanatical characters in these woodcutters' camps out of mischief, and the influence of this quasi-sacrosanct agent had much to do with assuring our safety on ground where Pakhtūn Wālī's authority was evidently none too effective.

munity claims descent from a great Saiyid saint who is supposed to be buried at Kāka Sāhib's Ziārat and is greatly venerated among all Pathān tribes from the upper Kābul river to the Indus.



31. VIEW FROM SHEKHAT PASS, LOOKING SOUTH-WEST TOWARDS TANGĪR-KANDIA WATERSHED.



32. ASCENT OVER ROCK DEBRIS TO PASS ABOVE GAPAR-DODO, GŪPIS.



33. RUINED FORT OF BIRNAO-KŌT, TANGĪR.



34. FOREST IN SATIL VALLEY, TANGĪR.



35. STREET IN CHATURKAND VILLAGE OF MANKIĀL, DARĒL.



36. GATE OF DODO-KŌT VILLAGE, DARĒL.

Crossing the Sheobat pass.

All the arrangements worked smoothly throughout. Our march on August 21 led us first through continuous forest to the junction of the Satil-gāh stream with a somewhat smaller tributary descending the valley of Paï from the north-east. This we followed upwards through splendid forest, here wholly untouched by the axe, to an elevation well over 10,000 feet. Then a long climb northward over steep slopes of rock and debris brought us to the top of the Sheobat pass (Fig. 31), a little over 15,000 feet in height and on the watershed range between the Indus and Gilgit rivers. It was with regret that I here quitted Pakhtūn Wālī's fascinating dominion, from which we had just 'lifted the Purdah'. I was sorry, too, to bid farewell to our hardy escort of outlaws (Fig. 10) when we met the considerable detachment of levies from Gūpis which had waited on the other side of the pass to take charge of us. The rewards I was able to give to Pakhtūn Wālī's men had been well earned and, I hope, helped to efface any unpleasant impression caused by the ill-disguised signs of distrust with which they were viewed, no doubt for good reasons, by the guardians of peace and order on the Gilgit side.

CHAPTER II

FROM YĀSĪN TO KĀSHGAR

Section I.—YĀSĪN IN HISTORY AND GEOGRAPHY

By crossing the Sheobat pass I had gained access to the mountain territories of Gūpis and Yāsīn, through which my route was to lead me straight north close to the watershed between Indus and Oxus. Ever since the Gilgit Agency was first established in 1877 more and more detailed information has become available about the geographical and kindred aspects of these tracts on the head-waters of the Gilgit river, and though some of the most useful books and surveys are not as yet within reach of the public, no general account of the ground over which this portion of my journey took me seems here called for. I may accordingly restrict my account to such observations as have a direct antiquarian or historical bearing, and to brief notes on the route actually followed by me and its successive stages. I may add that I propose to adhere to the same course in those further stages of my journey which took me across ground already fully surveyed or previously visited by me.

Chinese notices of 'Little P'o-lü'.

The region I traversed on my way from Tangīr to the main Hindukush watershed presents a distinct historical interest, because the route which leads down from the Darkōt pass through the open and comparatively fertile valley of Yāsīn must have always claimed importance as the shortest means of communication between Oxus and Indus. But the only notices shedding light on its early history are those found in Chinese records of the T'ang period, and as I have already had occasion to discuss them fully in the detailed reports on my two preceding Central-Asian journeys,[1] a brief summary of the main results there arrived at will here suffice. From the notices concerning 'Little P'o-lü' 小勃律 contained in the T'ang Annals, which M. Chavannes was the first to render fully accessible and to elucidate,[2] it is certain that this territory must have contained Yāsīn and the valley of the Gilgit river also. It acquired considerable political and strategic importance for the Chinese when early in the eighth century the Tibetans operating from the direction of Great P'o-lü or Baltistān endeavoured to secure access through Little P'o-lü to the Oxus valley and thus to join hands with the Arabs, the other great opponents of Chinese supremacy in Central Asia.[3] The necessity of keeping open the most direct route by which communication could be maintained from the Chinese side with Kashmīr and other Indian kingdoms threatened by Arab conquest, made the protection of Little P'o-lü an equally imperative measure of imperial policy.[4]

Kao Hsien-chih's

As early as A. D. 722 we read of Chinese troops helping its king to recover nine 'towns' taken from him by the Tibetans. In 737 Chinese intervention from the direction of the far-off

[1] See *Ancient Khotan*, i. pp. 6 sqq.; *Serindia*, i. pp. 52 sqq.

[2] Cf. Chavannes, *Turcs occid.*, pp. 149–54. With regard to the note on p. 129, note 2, in his *Errata supplémentaires* (lithographed), I may point out that M. Chavannes subsequently in his *Notes additionnelles sur les Tou-kiue occidentaux* (*T'oung-pao*, 1904), p. 43, note 1, fully endorsed the conclusion arrived at in *Ancient Khotan*, loc. cit., that Little P'o-lü comprised Yāsīn as well as Gilgit. For other references to the territory, preserved in the encyclopaedia *Ts'ĕ fu yüan kuei*, cf. Chavannes, *T'oung-pao*, 1904, p. 105, in Index s.v. *Pou-lu*.

[3] Some time before A.D. 722 we read of the Tibetans declaring to the king of Little P'o-lü: 'It is not your kingdom that we covet, but we wish to use your route in order to attack the Four Garrisons (i. e. the present Chinese Turkestān)'; cf. Chavannes, *Turcs occid.*, p. 150.

[4] Cf. the imperial brevet of A. D. 731 bestowing the title of king on the ruler of Little P'o-lü, quoted Chavannes, *Notes addit.*, *T'oung-pao*, 1904, p. 52.

Kuku-nōr helped to save Little P'o-lü from fresh Tibetan aggression. But it is the famous exploit by which the great Chinese general Kao Hsien-chih in A. D. 747 brought an army across the Pāmīrs, defeated the Tibetan invaders on the Oxus, and led his troops across the Darkōt pass into Little P'o-lü in the face of formidable natural obstacles that has furnished us with particularly interesting details. The topographical evidence elucidated by me when previously discussing the full record preserved by Kao Hsien-chih's biography in the *T'ang shu*,[5] leaves no doubt about the remarkable accuracy of that record. The description of the bold move across the ice-covered heights of Mount T'an-chü exactly fits the Darkōt pass. The distances indicated conclusively prove that the town of *A-nu-yüeh*, where the king of Little P'o-lü then resided, must be located at the present Yāsīn. In the same way it is certain that the bridge across the river *So-i*, the prompt destruction of which under Kao Hsien-chih's orders prevented the timely arrival of Tibetan reinforcements and thus ensured the immediate submission of the king and the people, corresponds to the bridge across the Gilgit river near the present Gūpis, by which alone Yāsīn can be reached from the route leading up the main Gilgit valley.[6]

Kao Hsien-chih's expedition across Darkōt, A. D. 747.

Remote as these Hindukush valleys may seem, we can yet, thanks to the Chinese record of Kao Hsien-chih's expedition, realize the importance they assumed at a momentous juncture of Asiatic history. The deep impression created by the occupation of Little P'o-lü is significantly reflected by the closing remark of the T'ang Annals on that success: 'Then the Fu-lin (Syria), the Ta-shih (Arabs) and seventy-two kingdoms of divers barbarian people were all seized with fear and made their submission.' But Chinese control over this region was not destined to last long. I have already had occasion above to refer to the Chinese garrison which Kao Hsien-chih left behind in Little P'o-lü, and to the difficulties of supply that its maintenance entailed. Very interesting light is thrown upon the conditions thus created by the representation which the ruler of Tokhāristān addressed in A. D. 749 to the Chinese Emperor and which has been fully analysed by me elsewhere.[7]

Chinese garrison left in Little P'o-lü.

From the Chinese records we know that in A. D. 750 effective Chinese intervention, once again under Kao Hsien-chih's leadership, relieved P'o-lü and the mountain territories to the west from Tibetan pressure. But with that general's complete defeat in A. D. 751 by the Arabs, Chinese power in Central Asia was destined to decline rapidly, and the withdrawal of its distant outpost isolated in the midst of the Hindukush cannot have been delayed for many years. Yet as late as A. D. 753 we are told of an expedition led by Kao Hsien-chih's successor against Great P'o-lü or Baltistān, which can scarcely have been undertaken from any other base than that furnished by the Gilgit valley;[8] and the arrivals of embassies and tribute from Little P'o-lü is recorded right down to A. D. 755.[9]

Later Chinese intervention.

[5] Cf. *Ancient Khotan*, i. pp. 9 sq.; *Serindia*, i. p. 55 sqq.; also my paper *A Chinese expedition across the Pamirs and Hindukush*, *G.J.*, 1922, Feb., pp. 112 sqq.

[6] I may point out here that the identification of the *So-i* river with the main branch of the Gilgit river which comes from Ghizar and is joined by the Yāsīn river at Gūpis is in no way impaired by the mention made elsewhere in the notice of Little P'o-lü furnished by the T'ang Annals that its capital *Yeh-to* 孽多 stood on the river So-i; see Chavannes, *Turcs occid.*, p. 150. I believe that a town is there referred to occupying the position of the present Gilgit fort and cantonment, which nature has marked out for the chief place in the main Gilgit valley.

But the natural advantages and importance of this position did not prevent those chiefs of Yāsīn who in modern times made themselves temporarily masters of Gilgit from keeping Yāsīn as their ordinary place of residence. Climatic considerations alone would account for this preference. Hence the statement about *Yeh-to* is quite compatible with what the Chinese record tells us of the presence of the king of Little P'o-lü at *A-nu-yüeh*, i. e. Yāsīn, at the time of Kao Hsien-chih's exploit.

[7] See *Ancient Khotan*, i. pp. 11 sqq.; for the document itself, see Chavannes, *Turcs occid.*, pp. 214 sq.

[8] Cf. Chavannes, *Notes addit.*, *T'oung-pao*, 1904, p. 88, note 2.

[9] See Chavannes, *loc. cit.*, pp. 85 sq., 93.

Modern local history.

From the time when the Hindukush region passed out of China's sphere of interest in the eighth century reliable historical records concerning Yāsīn and the adjoining valleys fail us for nearly a thousand years. The account of local history which Colonel Biddulph and others have gathered from oral tradition assumes a definite shape only with the advent to power, towards the end of the seventeenth or early in the eighteenth century, of the family, apparently of Badakhshān origin, from which are descended both the Katūr rulers of Chitrāl and the Khushwaqts originally established in Mastūj.[10] The Khushwaqt branch appears very soon to have asserted its power over Yāsīn also; and owing to the superior capacity for war or for intrigue possessed by many of its members, the whole of the Gilgit valley likewise passed at different times under its temporary domination. There is no need to examine here the tangled web of a story in which struggles, marked uniformly by treachery and murder and waged between close relations or with members of the rival house of Chitrāl, prevailed right down to the close of the nineteenth century.[11] A few points, however, deserve mention. It is interesting to note that, as I have had occasion to point out elsewhere, we owe the earliest exact record connected with Khushwaqt rule in Mastūj and Yāsīn to Chinese intervention in 1749.[12] Traditions of Chinese or 'Kalmak' invasion still survive in Yāsīn, but are too vague to be fixed chronologically.

Advantages of geographical position.

Significance attaches to the fact that though the Yārkhun valley below and above Mastūj is the original seat of the Khushwaqt branch, yet Yāsīn was always preferred by them as a residence.[13] This preference is fully accounted for by the advantages which Yāsīn offers by its geographical position and natural features. The fact that in its main valley open ground of comparatively great width extends for a distance of about forty miles would alone suffice to give it importance. There are here none of those narrow defiles, formed by precipitous spurs of rocky or vast debris shoots, which in other great valleys to the south of the main Hindukush greatly reduce the area of arable ground and render communication between them difficult. The glacier-fed waters of the Yāsīn river and its side streams make irrigation easy, and if considerable portions of the available ground are now left uncultivated, the cause is certainly not want of water but an inadequate population. The same high flanking ranges, showing peaks over 20,000 feet in height, which assure this abundant supply of water, also protect Yāsīn against attack on all sides except the south. There, too, as the account of Kao Hsien-chih's expedition shows, the Gilgit river, unfordable for the greater part of the year, serves as a very effective obstacle to invasion, especially as the extremely precipitous spurs on either side of the outlet of the Yāsīn river form flanking defences of exceptional strength.

Fertility of soil,

That Yāsīn could, and once did, support far more than the present population, estimated at about five hundred families or about 4,700 souls, is proved by the extent of the ground capable of irrigation and by the fertility of the soil. The fact that the whole of the main valley from Darkōt village down to the point where it debouches opposite Gūpis lies at the moderate elevation of between 7,000 and a little over 9,000 feet would alone account for this fertility. But the north

[10] Regarding this ruling family and its branches, cf. Biddulph, *Hindoo Kush*, pp. 150 sqq.; for the historical relations between Mastūj and Chitrāl, see also *Serindia*, i. pp. 41 sq.

[11] The succinct account contained in Biddulph, *Hindoo Koosh*, pp. 151 sqq., is usefully supplemented by the details relating to the period following the Sikh occupation of Gilgit given in the chapter on 'Gilgit History', in Drew, *Jummoo and Kashmir*; see particularly pp. 436 sq., 444 sqq., 450 sq. Much exact information about the events of the latter half of the nineteenth century concerning Chitrāl and Gilgit is recorded in official Gazetteers, Mission Reports, &c. which are not yet accessible to the public.

[12] See *Serindia*, i. p. 33, relating to the notice in Klaproth, *Magasin asiatique*, i. p. 96.

[13] Cf. Biddulph, *Hindoo Koosh*, p. 59. The permanent establishment of the Khushwaqts in Yāsīn dates from Ferāmorz, the son of the founder of the branch; cf. *ibid.*, p. 151.

to south direction of the valley, whereby all the land obtains sufficient sunshine and a shorter season of severe cold, adds greatly to the favourable character of its climate. The scantiness of the present population is ascribed by Colonel Biddulph, no doubt quite correctly, to oppression and misgovernment,[14] and that this has been long continued is sufficiently clear from what we know of the history of Khushwaqt rule during the last two centuries.[15]

Natural defences of Yāsīn.

The fact that the constant ' wars of the Yāsīn rulers since the beginning of the century have ', as Colonel Biddulph has rightly observed,[16] ' been the most powerful agent in depopulating the country ', supplies an additional reason for drawing attention here to a geographical factor of interest. I believe that this warlike activity of the Yāsīn rulers is itself largely explained by geographical conditions. A look at the map shows that the peculiar position of the Yāsīn valley makes it a favourable base for aggression in the direction both of Chitrāl and of the main valley of the Gilgit river, access to the upper portion of which it completely commands. On the other hand Yāsīn itself is easily defended both on the north and south, as already pointed out, and its remoteness alone tends to make it secure from local attack by tribal communities or petty chiefships. It is only when command of the direct route connecting Indus and Oxus by way of Yāsīn and the passes of Darkōt and Barōghil becomes an important object for distant but powerful neighbours, that the seclusion of Yāsīn fails to protect it. It was thus when Tibetans and Chinese in turn were striving for a hold upon Little P'o-lü, and again in our own days when political developments between two big Asiatic powers affected remote Yāsīn in a curiously similar manner.[17]

Burushaskī spoken in Yāsīn.

This relative remoteness and seclusion of Yāsīn are reflected in an interesting ethnological and linguistic fact. The language spoken in Yāsīn by the bulk of the population is Burushaskī, locally known as *Wurishkī*, a tongue wholly distinct from the Dardic languages of the Hindukush region and without any known relationship. The name of the tongue is derived from the designation *Wurish* which the Yāsīn people apply to themselves, and this appears again in the name *Wurshigūm* or *Warshigum*, by which Yāsīn proper is still known locally.[17a] Outside Yāsīn Burushaskī is now spoken only in Hunza and Nagar, both of them territories that in position exactly correspond to Yāsīn and are even better protected by natural difficulties of access. But there is plentiful linguistic evidence that in earlier times the area where this strange language was spoken extended much farther to the south. Traces of its influence have been found in almost all Dardic languages, however far removed from the valleys where Burushaskī (Wurishkī) still survives.[18]

Recession of Burushaskī speech.

It has been long recognized that the present restriction of Burushaskī to the most remote valleys south of the main Hindukush range and to a very small portion of the total population of the whole mountain region points to a gradual withdrawal and absorption of the race that originally spoke it, due to a wave of 'Aryan' invasion represented by the tribes speaking Dardic

[14] See *Hindoo Koosh*, p. 56.

[15] The effects of this misrule, as far as number of the population is concerned, have been made, no doubt, still more lasting by the devastation and wholesale slaughter accompanying the two Dōgrā invasions of 1860 and 1863 which followed constant attacks and intrigues of the Yāsīn chiefs against Gilgit; cf. Drew, *Jummoo and Kashmir*, pp. 444, 446; Leitner, *Dardistān*, p. 66, where harrowing details are recorded from the mouth of native witnesses.

[16] See *Hindoo Koosh*, p. 33.

[17] It is well known that it was the strategic importance of the routes leading from the uppermost Oxus and the Pāmirs across the Barōghil saddle towards the valleys of the Indus and Kābul river that forced the Indian Government after 1885, in view of the Russian menace, to extend an increasingly effective control over Yāsīn and Chitrāl—territories which the Dōgrās, in spite of their troubles in connexion with Gilgit, had been quite content to leave in virtual independence.

[17a] Cf. Biddulph, *Hindoo Koosh*, p. 38. Mughul Bēg's survey made about 1789–90 records the name as *Warshigum*; see Raverty, *Notes on Afghānistān*, p. 189, where a remarkably accurate account of Yāsīn based on Mughul Bēg's report is given. The form *Warshgum* is also found on the Survey of India Maps.

[18] Cf. Grierson, *Linguistic Survey*, VIII. ii. pp. 6, 186.

languages.[18a] This conclusion is supported by the fact that the Burish or Wurish are considered to be of the same caste as the Yashkun who form the entire population of Puniāl, below Gūpis, and a very strong element numerically lower down also in the Gilgit valley, as well as in Astōr and Darēl.[19] There is apparently little at present to distinguish the Burish or Wurish people (Fig. 42) in physical features from the type prevailing among the Dard-speaking population, whether of the Yashkun or of other castes in those valleys. But in view of the absence of adequate and systematically collected anthropological materials the relation between linguistic and racial divisions in this area can scarcely as yet be examined with profit.[20]

Mountain tract of Kho.

In my preceding observations on the geographical features, &c., of Yāsīn I have specifically had in view the main valley, i. e. Wurshigūm. But in a political sense Yāsīn all through its modern history included also the small mountain tracts of Kho (Kuh) and Ghizar on the uppermost Gilgit river, and having regard to their geographical position it is clear that this must have been the case also during earlier periods. A brief reference to them is, therefore, needed here. The tract, designated as *Kho* by Colonel Biddulph but spelt *Kuh* by more recent authorities,[21] comprises the very narrow strip of valley through which the Gilgit river passes immediately above and below its junction with the Yāsīn river at Gūpis. The fact that with a total length of about thirty miles this portion of the valley counted in 1900 a population of only some 1,200 souls, sufficiently illustrates its very confined nature. Of the small side valleys which join it from the south and are included with it, only the Batres-gāh Nullah supports a few hamlets. A very narrow defile, defended by an old tower some miles above the mouth of Batres-gāh, divides Kho from Ghizar, while eastwards, in a still more difficult gorge extending for about nine miles, lies the boundary towards Puniāl and Gilgit.[22] It is this easily defended defile which forms the true natural barrier between Yāsīn and Gilgit and explains the inclusion of Kho in the former territory.

Ghizar tract.

The Ghizar tract extends right up to the watershed towards Mastūj and Chitrāl, formed by an easy saddle (12,250 feet above the sea) immediately west of the Shandur lake. The upper part of the valley from above Ghizar proper is fairly open, and this accounts for the presence of a population about twice as large as that of Kho. The importance of the district, however, is due solely to the easy route which it affords for communication between Lāspur and Mastūj on the one side and Yāsīn and Gilgit on the other. The facilities afforded by this route explain why Mastūj and Yāsīn, though on opposite sides of a mighty mountain range rising to peaks over 21,000 feet in height, were yet for a long period united under one rule. They help us also to understand why the Chinese mission which Wu-k'ung accompanied about A. D. 751, coming from the Pāmīrs via the Barōghil, chose the detour through Mastūj, Lāspur and Ghizar, as I have elsewhere shown that they probably did, in order ultimately to reach Udyāna from the Yāsīn side.[23]

[18a] Cf. e. g. Grierson, *Linguistic Survey*, VIII. ii. p. 6.

[19] Cf. Biddulph, *Hindoo Koosh*, p. 38. Drew, *Jummoo and Kashmir*, p. 427, offers some judicious observations about the ethnographic bearing of this 'caste' distinction.

[20] As regards the present racial constitution of the Burish or Wurish people, the possibility of its having been affected also by infiltration from Iranian-speaking 'Galcha' tribes north of the Hindukush ought not to be lost sight of. Thus we find nowadays the northernmost portion of the Hunza valley, known as Guhyāl, occupied by Wakhīs from the uppermost Oxus (cf. my *Ruins of Khotan*, pp. 45 sq.), while small Badakhshī settlements appear in Yāsīn.

A similar process is observable at the head-waters of the Chitrāl river. The westernmost valley of Kāshkār-bālā is held by the Yidghāh, who speak a dialect of Munjānī, one of the Galcha languages, and in the topmost portion of the Yārkhun (Mastūj) valley I found in 1906 Wakhī immigration in actual progress; see below, p. 49.

Thus we see that the Hindukush does not constitute nowadays either a linguistic or a racial watershed. By assuming similar conditions in the past we can best account for the very close resemblance in physical characteristics which undoubtedly connect the people of Yāsīn and Hunza, as well as those of Chitrāl and Mastūj, with the *Homo Alpinus* type of the Galchas; cf. Joyce, *Notes on the Physical Anthropology of Chinese Turkestan and the Pamirs*, *J. R. Anthrop. Inst.*, xlii. p. 462; *Serindia*, iii. p. 1357.

[21] Cf. Biddulph, *Hindoo Koosh*, p. 57.

[22] For a graphic description of this defile, cf. Biddulph, *ibid.*, p. 55.

[23] See *Serindia*, i. pp. 17 sqq.

Section II.—THROUGH YĀSĪN TO THE DARKŌT PASS

Ghizar, now separately administered by a 'Governor' of Khushwaqt descent, lay at a distance from my route. But of the Kho tract I was able to see something on my way from the Sheobat pass to Yāsīn proper. The descent from the former took us on August 23rd over ground clearly marked as the bed of a former glacier and past steep slopes of rock debris to the high grazing ground known as Kuterao-ferao. Next day, a couple of miles lower down, we struck at Mayurai the Batres-gāh valley. Here an area of carefully levelled ground, not less than half a mile square, attested former cultivation at an elevation of over 10,000 feet. The Batres-gāh valley looked comparatively open. A track practicable for laden animals ascends the valley south-eastwards to the Suj-galī pass leading to Nyachūt in Darēl, and this is the route by which Fa-hsien and his Chinese fellow pilgrims probably proceeded to *Ta-li-lo* and the Indus. For our own journey to Yāsīn two marches down the Batres-gāh Nullah to its mouth and then another along the Gilgit river to Gūpis would have offered the easiest route. But in order to save a day I chose the short cut that was reported to lead above Gafar-bōdo to a pass giving direct access to the head of the Gūpis Nullah due north. *Head of Batres-gāh valley.*

The mountains to the south of the Gilgit river have in these parts not yet been adequately surveyed. So it was scarcely surprising that this unexplored pass proved almost impossible for our porters. For fully eight hours we scrambled over huge masses of rock debris and boulders (Fig. 32), the worst I ever encountered in this region, relics of an ancient glacier, before we reached the narrow rock gully forming the pass at an elevation of just under 16,000 feet. The entire absence of glacier mud or other soft soil over all this ground seemed a clear indication of the dryness of the climate on this side of the Indus watershed, far advanced denudation resulting from it. On the steep north slope of the pass *névé*-beds were still found, the last remnant of what must have been, within a relatively recent period, a glacier of some size. Nightfall obliged us to camp amidst old moraines at an elevation well over 15,000 feet. *Pass above Gafar-bōdo.*

The following day's march led down to Gūpis through a steep and gradually narrowing valley. In its upper portion it was of interest to observe a succession of ancient terminal moraines marking at intervals the points to which the glacier had advanced at different geological periods. Stretches of sloping meadow land used for grazing separated these steep falls of rock debris, the lowest of them being met with some nine miles below our camping-place. Below the junction with the Bāshkar-gāh branch, which descends from the south-west and still holds an active glacier, the valley contracts into an extremely narrow gorge flanked on either side by rocky precipices. These cliffs, which at their base showed in places clear marks of glacier 'grinding', appeared to rise to a height of 3,000 feet or more above the cañon-like bed of the stream. Their name *Upaiyōl*, interpreted to mean in Shiṇā 'higher than birds can fly', suggests some local legend similar to that which accounts for the origin of the ancient name Paropanisus (Avestic *Upairi-çaēna*) borne by the Hindukush main range north of Kābul. A very steep spur jutting out above the main valley near Gūpis and known as Ishkērbal was pointed out as a natural place of refuge resorted to in old times. *Descent to Gūpis.*

August 24th, spent at the village of Gūpis, was our first day of halt since leaving Kashmīr. We took advantage of it for work of many kinds, in which we were assisted by the presence of the small garrison of Imperial Service troops holding Gūpis Fort. This effectively guards both the mouth of the Yāsīn valley opening on the opposite side of the river and the route that leads to Mastūj and Chitrāl. It was of direct historical interest to find this testimony to the strategic importance of the point under present, as under past, conditions; for, as mentioned above, it is *Halt at Gūpis Fort.*

certain that the bridge across the river *So-i*, i. e. the Gilgit river, the timely destruction of which played so decisive a part in Kao Hsien-chih's successful operations against the Tibetans, must have stood in the close vicinity of the present Gūpis. The modern wire suspension bridge giving access to Yāsīn crosses the bed of the united Gilgit river almost opposite to Gūpis Fort. But in view of the considerable width of this bed,[1] of the big volume of water carried by the river during the greater part of the year, and of the materials available in this region, it is unlikely that any bridge other than a mere rope-bridge could have been constructed here before the days of modern engineering.

Rope-bridge across Gilgit river.

A rope-bridge of the old type such as is usual between Kashmīr and the Hindukush, constructed with ropes of twisted twigs, actually existed at Gūpis before 1895, and it is probably to a bridge of this kind that the Chinese record contained in Kao Hsien-chih's biography refers where it speaks of a 'pont de rotin'.[2] It is true that a rope-bridge would not have been practicable for the horses, or rather ponies, of a mounted force such as the Chinese account mentions as forming part of the Tibetan troops. But animals might be swum across the river, as they are elsewhere at the present time. Nor should the possibility be excluded of a bridge of a somewhat more substantial kind having been available at a point above the junction of the rivers of Yāsīn and Ghizar (Fig. 37). There only the latter would have to be crossed in order to gain access to the Yāsīn valley. In such a position, about four miles above Gūpis Fort, a rickety bridge constructed of poplars was maintained until recent years across the Ghizar branch of the river, though liable to be carried away by summer floods.[3]

March to Yāsīn village.

An easy march of some thirteen miles on August 25th brought me from Gūpis to Yāsīn, the chief place of the valley. The openness of the ground at the bottom of the valley was the more impressive for the extreme steepness and height of the bare rock walls which confine it on either side. Much abandoned cultivation below the hamlet of Gindal bore witness to the vicissitudes

[1] The present suspension bridge has a span of close on 180 feet, and is placed at a particularly narrow portion of the rock-bound bed where the left bank could be made practicable only by a good deal of blasting.

[2] Cf. my note in *Ancient Khotan*, i. p. 10, note 8. For facility of reference I may quote here the passage of the biography relating to the bridge as translated by M. Chavannes, *Turcs occid.*, p. 153, note: (Kao Hsien-chih) ... 'ordonna en toute hâte à (Si) Yuen-k'ing de détruire le pont de rotin qui se trouvait à une soixantaine de *li* de (la capitale du) *Pou-lu*; vers le soir, quand il venait à peine d'être détruit, de l'infanterie et de la cavalerie tibétaines arrivèrent en grand nombre, mais il était trop tard pour qu'elles pussent atteindre leur but; ce pont de rotin avait la largeur d'un chemin de tir à l'arc; le construire avait été l'affaire d'une année entière; le *Pou-lu* s'était autrefois laissé tromper par les Tibétains qui avaient emprunté sa route et c'est alors qu'on avait fait ce pont.' M. Chavannes in a note points out that another version of this record contained in the *T'ang shu* states: 'la longueur du pont était d'une portée de flèche.'

[3] It deserves to be pointed out that after the subsidence of the summer floods, some time in September, and until the following spring, it is possible to gain Yāsīn from the Gūpis side by fording one river after the other a little above their confluence where a level tongue of alluvium separates them. It is with special regard to this fact that I assume it to have been possible for Kao Hsien-chih, as explained in *Serindia*, i. p. 54, note 3, to effect his return from Little P'o-lü to the uppermost Āb-i-Panja valley by the route leading through Gilgit and Hunza, notwithstanding the preceding destruction of the bridge across the Gilgit river below Yāsīn.

Kao Hsien-chih's biography (cf. Chavannes, *Turcs occid.*, p. 153, note) distinctly tells us that after pacifying the whole of Little P'o-lü, i. e. Gilgit and its dependent tracts as well as Yāsīn, the Chinese general carried out his retreat during the eighth month of the Chinese year, i. e. between the middle of September and the middle of October. He did not rejoin the troops left behind near Sarhad, in uppermost Wakhān, until the ninth month, and gained the Pāmīrs only at the close of that month.

For the difficult march as assumed by me (see also below, p. 52) from Gilgit up the Hunza gorges to the Chapursan valley and thence across the Irshad pass to the Āb-i-Panja, the season indicated by the eighth Chinese month was certainly most suitable. But Kao Hsien-chih could not have availed himself of it if the destruction of the bridge near Gūpis, so opportune a measure against the attempted Tibetan counter-attack, had also prevented him from descending to Gilgit a few weeks later.



37. JUNCTION OF YĀSĪN AND GHIZAR RIVERS ABOVE GŪPIS.



38. RUINED ENCLOSURE OF BAHRĪ-KHĀN, DASHT-I-TAUS, WITH VIEW TOWARDS HEAD OF YĀSĪN VALLEY.



39. GROUP OF TANGĪRĪS AT JAGLŌT.



40. RUINED FORT OF CHUMARKHAN, YĀSĪN.

41. VIEW DOWN YĀSĪN VALLEY FROM CHUMARKHAN.
Rest-house near middle of view; castle behind it among trees.

42. GROUP OF KHUSHWAQTS AND BURISH AT HONDUR, YĀSĪN.
Rāja of Hondur (Khushwaqt) with two relatives, seated; behind, Burish cultivators.

through which Yāsīn had passed. I found some of these abandoned lands in course of being reoccupied by recent emigrants from Badakhshān. Their presence, together with many imported articles of dress and the like, were a sign of the vicinity of the Oxus region and of the influence that its civilization has always exercised beyond the Hindukush watershed.

Visit to Yāsīn castle.

Yāsīn proper, the largest village in the district, stands in the stretch of fertile ground, covered with rich fields and orchards, that extends for about four miles along the right bank of the river below the issue of the Nasbar valley (Fig. 41). A day's halt there enabled me to visit the late Rāja Shahīd-ul-'Ajam, then Governor of Yāsīn, in the old and now half-decayed castle that had sheltered his Khushwaqt ancestors during generations of strife and bloodshed. In the plentiful wood-carving of its tumble-down halls the predominance of Persian architectural ornament was unmistakable, clearly pointing to models from distant Badakhshān. It was interesting also to observe signs of the time-honoured feudal devotion linking Yāsīn people with the race that for two centuries and down to quite recent times had almost constantly misruled them.

Old remains at Yāsīn.

From the rest-house situated not far from the outlet of the Nasbar-gol, on ground now undergoing reclamation after prolonged abandonment, I proceeded to examine the spot, a quarter of a mile to the south-west, where some old remains were reported to have been brought to light by shepherds, about three years before my visit. I found there, at the rock-strewn foot of the hill-side, the remnants of a walled platform measuring about 18 by 30 feet, and on it a small circular mound formed of rough stones and rubble and probably marking the last relic of a completely decayed Stūpa. The mound had been levelled almost to the ground by digging; but among the debris thrown down on its north side a careful search brought to light eight small clay seals,[28] of which the best preserved showed the relievo representation of a Stūpa with five 'Chhattras' and around it traces of the Buddhist formula *ye dharmaprabhavāh*, &c., in Nāgarī characters of the late type common in Tibet. These clay seals, similar to those found at the sites of numerous Buddhist shrines in India and Central Asia, had evidently formed part of a votive deposit disturbed when the mound was dug into.

Ruined fort of Chumarkhan.

Just to the north of Yāsīn and the mouth of the Nasbar valley there extends on the right bank an almost level plateau, about three miles long and one mile wide, known as Dasht-i-taus. It is known to local tradition to have once been cultivated, and its position is such as to permit of its easily being brought under irrigation again by a canal from the Nasbar stream. At the south-western extremity of this plateau, where it falls off with precipitous cliffs of conglomerate towards the bed of the Nasbar-gol, there rise the much-decayed walls of a ruined fort known as *Chumarkhan*. As seen in the plan (Pl. 1), it forms an irregular quadrilateral, with a face about 170 feet long crowning the cliffs above the stream and a keep-like structure in the centre measuring 18 by 20 feet within (Fig. 40). The walls, built of flat pieces of slaty stone and large rubble pieces inserted between them, are as much as three feet in thickness, but now rise nowhere to more than five feet above the ground. That it was meant to guard the approach to the Dasht-i-taus plateau from the Nasbar valley, across a narrow saddle immediately below the north face of the fort, there can be no doubt. The advanced state of decay of the walls points to their considerable antiquity. Popular tradition ascribes the fort to the same age as the cultivation of the Dasht-i-taus.

Remains of Dasht-i-taus.

Resuming on August 27th my journey up the main valley, I rode along this now utterly barren plain and was shown in several places traces of an old canal coming from the side of the Nasbar stream. Its line was quite distinct from that of a smaller canal derived from the Tui stream farther

[28] **Yāsīn. 01. Eight clay seals** of one type. In low relief: Stūpa with four-tier base on row of roundels; five or more umbrellas above. Background covered with rows of Nāgarī chars. Very poor impressions; several broken. Aver. diam. 1⅜"; thickness ⅜". Pl. XI.

north and much better preserved; by the latter canal Sulaiman Shāh, a Khushwaqt ruler of Yāsīn and Gilgit at the beginning of the nineteenth century,[4] had endeavoured to bring water once more to Dasht-i-taus. This enterprise of reclamation is supposed to have been abandoned when the rule of that energetic but unscrupulous prince came to a violent end. That the occupation of the Dasht-i-taus belongs to an earlier period is proved by the remains of a large walled enclosure called Bahri-khān (Pl. 1), situated about two miles above the northern end of Yāsīn and opposite to Ghujalti village on the left bank (Fig. 38). Tradition connects it with a Chinese or 'Kalmak' invasion, possibly the same that I have had occasion to discuss before in connexion with the Chinese record of Khush-āmad's reign about the middle of the eighteenth century.[5] The enclosing walls, built of large water-worn stones from the river-bed below and fully five feet in thickness, form an irregular pentagon of which the three best-preserved faces measure about 264, 273 and 153 feet respectively. Their present height nowhere exceeds four or five feet, and the remains of large quarters traceable near the centre of the enclosure are even more decayed. Apart from debris of hard dark-grey pottery within the ruined fort, I could trace no signs of prolonged occupation. But there can be no doubt that if the old canal were restored, or even if that of Sulaiman Shāh were completed, the amount of arable land, and with it the population, in the Yāsīn valley could be greatly increased.

March to Hondur.

Continuing our march up the valley we followed the line of Sulaiman Shāh's canal for nearly four miles before crossing the mouth of a large river that descends the Tui valley. Through this leads an important summer route, by which the upper Yārkhun valley can be reached on the Mastūj side across the high Tui pass. Beyond the junction the main valley, known from this point upwards as Warshigūm, affords room for a succession of picturesque villages with rich fields and orchards, extending almost without interruption up to Hondur. They are comprised in the subdivision of Salgām that forms at the present day the best-populated tract of Yāsīn. Passing the large fort of Mīr Wālī, called after Pakhtūn Wālī's father, Hayward's murderer, I visited at Barkulti the fine but much-neglected house of the local 'Hākim' (Fig. 45). The style and abundance of the excellent wood-carving in its large halls recalled what I had seen in Hākim Obaidullah's house at Mīragrām on the Mastūj side.[6] It was unfortunately too late in the day to take any photographs of the interesting interior. The house was said to have been built some five generations ago. A photograph (Fig. 42) taken at Hondur, where we halted for the night, may show how closely the fine physical appearance of the people of Warshigūm resembles that of their neighbours in Chitrāl and Mastūj. Notwithstanding their Burishaskī speech, wholly distinct from either the Dardic or the Iranian language group, the 'Burish' whom I saw seemed to exhibit all the physical features characteristic of the pure *Homo Alpinus* type.

Village of Darkōt.

From above Hondur cultivation becomes intermittent, as the valley northward narrows. But in spite of the stupendous rock walls rising on either side progress along its bottom remains quite easy right up to the village of Darkōt, a distance of nearly twelve miles. Here, at an elevation of over 9,000 feet, the head of the valley opens out into a huge amphitheatre, forming a wide grass and jungle covered flat flanked on its sides by mighty ice-clad spurs. The streams issuing from the glaciers which fill the side valleys between these spurs unite close to Darkōt to form the river of Yāsīn. The plain extending around their junction abounds in grazing and fuel, and seems as if created by nature as a resting-place for a force of invaders from the north, such as Kao Hsien-chih had successfully led across the Darkōt pass. It struck me as a significant indication of the vicinity of the uppermost Oxus valley that one of the headmen of Darkōt was an immigrant from

[4] Cf. Biddulph, *Hindu Koosh*, pp. 137, 153 sq.

[5] Cf. *Serindia*, i. p. 33; above, p. 38.

[6] Cf. *Serindia*, i. pp. 49 sq.

Wakhān, and that the plentiful ornamental wood-carving in his panelled 'Aiwān' was of a distinctly Persian style.[6a]

Approach to foot of Darkōt pass.

A move of some three miles northward across a boulder-strewn plain, no doubt once the bottom of an ancient glacier basin, brought us to the entrance of the narrow gorge by which the stream from the glaciers adjoining the Darkōt pass has cut its way through a transverse ridge. This ridge, which the route crosses, is known as 'Darband', from old walls intended to form a *chiusa*. It was from the crest of this ridge, at an elevation of about 10,000 feet, that the ice-covered depression in the range forming the Darkōt pass, 15,380 feet above the sea (Fig. 44), first came into view from the south. Both to the west and east of it glaciers, of far greater size than that below the pass, descend from peaks towering to heights well above 20,000 feet. The abundant moisture assured by the vicinity of the streams that drain all these ice-clad slopes favours vegetation. I was therefore not surprised to find that besides pasture and numerous birch-trees, terraced fields cultivated by the Darkōt people extend above those streams to an elevation of about 11,000 feet. Our march that day was continued past these fields of Gakushi and up the broad but steep spur which gives access to the pass, until at an elevation of about 12,300 feet we encamped on the last level bit of ground, known as Khamba. The smiling alpine landscape spreading to the south struck me by its contrast with the great wastes of ice and rock that I remembered so well on the north side of the pass from my ascent to it seven years before.

Darkōt pass revisited.

It was the desire to see the scene of Kao Hsien-chih's great exploit that had then induced me to visit the Darkōt pass in spite of the early season, bad weather, and an exceptional winter snowfall.[7] It was the thought of it, too, that now invested the actual crossing of the pass with special interest for me. It was effected on August 29th, with all the advantages of the late summer season and ample arrangements for transport. All the same it served to impress me again with the seriousness of the natural obstacles presented by the glaciers of the Darkōt. I realized more than ever that the Chinese general's passage in A. D. 747 with a relatively large force, already severely tried by their march across the whole width of the Pāmīrs, deserves to rank, as a great military achievement, side by side with the most famous alpine feats of leaders such as Hannibal or Napoleon, if it does not surpass them. I have discussed elsewhere this remarkable exploit in full detail,[8] and have shown how closely the topographical features of the Darkōt pass agree with the exact account of this expedition which Kao Hsien-chih's biography in the T'ang Annals has preserved for us. I need therefore only record here such of the observations made on my renewed visit to the Darkōt as will help to supplement my previous description of the pass.

Rock engraving below Darkōt pass.

The track above our camping-place, Khamba, ascended very steeply along bare rocky slopes, but when free of snow it was practicable for laden animals. After about a mile it passed at an elevation of about 13,100 feet the large inscribed boulder of which I had first heard at Yāsīn (Fig. 46). It lies a few yards above the track, and its top, sloping at an angle of about 45°, presents an almost flat surface measuring approximately five feet by four. The stone appeared to be a dark-grained granite; the surface on the exposed top has weathered to an almost black appearance. This surface shows in its middle portion and engraved to a depth of about one-fifth of an inch the outlines of what manifestly is meant to represent a Stūpa, and by its side to the right five rows of Tibetan characters, two in each for the most part manifestly coeval with the Stūpa. In

[6a] The following describes a piece of wood-carving acquired from the same Darkōt house:

Darkot. 01. Carved wood 'Takhti'. Handle at one end. Pattern, repeated three times in length, composed of four 'nests' of long pointed leaves growing towards a common centre four-petalled flower. The 'nests' are joined by looped stems. All cuts V-shape. Background and pattern picked with square pointed tool. *Rev.* shows similar pattern roughly sketched in black ink. Dark, straight-grained wood; well preserved, 13¾" × 3¼" × ½". Pl. LXVIII.

[7] Cf. *Desert Cathay*, i. pp. 56 sqq.

[8] See *Serindia*, i. pp. 56 sqq.

all these the engraved lines show a uniform brownish colour, while over the middle of the stone and to the left of the Stūpa, there appear much shallower graffiti of Arabic writing, easily distinguished by their light colour. This difference of colouring and the fact of the graffito in the middle running across the central part of the Stūpa leave no doubt that these graffiti are of relatively far more recent date. In addition to these graffiti there appears between the top of the Stūpa and the Tibetan inscription the rough sketch of a horse and rider, showing a colouring similar to that of the former. The surface immediately below the Stūpa base has suffered by peeling, but retains traces of a flower or fruit-like design, also old. The roughly scratched figures of four-horned animals, evidently meant for mountain sheep, which are to be seen on the left side of the stone between the graffiti in Arabic characters, seemed to have been exposed to weathering somewhat longer than the latter.

Design of Stūpa.

The Stūpa design (Pl. 1) is very peculiar, but the inverted bowl on its top, surmounted by what is manifestly meant for a *chhattra*, suffices to establish its character. The two lowest steps of the base and the much higher member above them certainly recall the threefold base of the Stūpa engraved on the boulder of Charrun in Mastūj which Fig. 6 and Pl. 2 of *Serindia* reproduce.[8a] But the cross-like design intervening between the shaft and the inverted bowl bears but a very distant resemblance to the projecting plinth and the drum that the rock-engraved representations of Stūpas at Charrun and Pakhtōrīdīnī both display in a corresponding position below the dome. Peculiar, too, is the substitution of an inverted bowl for the hemispherical dome of the Stūpa, though Buddhist tradition has from an early date sought to recognize in this dome a symbolic representation of Buddha's *pātra* or begging bowl.[9] With the curious presentation of the pedestal or supports meant to carry the 'Chhattra' may be fitly compared the equally coarse design which the Pakhtōrīdīnī rock-carving shows in the same place. Finally, poor as the drawing of the umbrella at the top is, there can be no doubt what it is intended to signify.

Tibetan inscription.

Dr. A. H. Francke, to whom I submitted photographs of the rock-engraving together with carefully drawn copies of the Tibetan characters, was kind enough to furnish me, in a letter dated September 15, 1921, with a note on them reproduced in Appendix *L*. From this it is seen that the inscription names a certain *Lirnidor* together with his family or clan designation *rMe-'or*, probably taken from a locality, as the donor of a Stūpa. The fact of the personal name being put in the genitive is taken by Dr. Francke as an indication of the early date of the inscription, and this is in harmony with the palaeographic character of the letters, which, in that scholar's opinion, 'show the characteristic marks of the Tibetan script of the eighth and ninth centuries'.

From the relative position of the two, it is obvious that the representation of a Stūpa is contemporary with, if not older than, the Tibetan inscription. This chronological indication has its special archaeological interest with regard to the peculiar cruciform type of Stūpas which Dr. Francke has noted before among Ladākh rock-carvings.

Tibetan invasion of Gilgit.

Local tradition, so far as it goes back, knows nothing of Tibetans having ever established their rule or their Buddhist worship in Yāsīn. Hence all the more interest attaches to the statement in Dr. Francke's note that a Tibetan text mentions the conquest of the Gilgit region as having taken place under a Tibetan ruler of the eighth century. In view of this collateral evidence one is tempted to connect the Buddhist rock-carving on the Darkōt with that short-lived Tibetan advance on the uppermost Oxus which the T'ang Annals record towards the close of the second quarter of the eighth century and which Kao Hsien-chih's adventurous expedition successfully arrested.

Graffiti in Arabic characters.

The difference in the weathering shows that the graffiti in Arabic characters must be considerably later than the Tibetan inscription. They consist of the Shīāh invocation, *Yā Allah*

[8a] Cf. *Serindia*, i. pp. 37 sqq.

[9] Cf. Foucher, *L'art du Gandhâra*, i. p. 64; Beal, *Si-yu-ki*, i. pp. 47 sq.



43. FIRN BED ON NORTHERN SLOPE OF DARKŌT PASS.



44. DARKŌT PASS SEEN FROM BELOW DARBAND RIDGE.



45. OUTER COURT OF HAKIM'S HOUSE AT BARKULTI, YĀSIN.



46. ENGRAVED BOULDER WITH STŪPA DESIGN AND TIBETAN INSCRIPTION ON ASCENT TO DARKŌT PASS.
(See pp. 45 sq.; App. L.)

yā 'Alī madat, scribbled across the cruciform portion of the Stūpa, with another *Yā Muḥammad yā Muḥammad yā 'Alī* below it. To the left of the Stūpa, written vertically, we read the names *Khāwar Shāh Shāh Khushwaqt* and in the left top corner *Yā 'Alī madat pādshāh Mardān*. Finally across the lowest base of the Stūpa is scrawled the record, *ba kalam Murād Bēg*. None of the persons here named seems capable of definite identification at present; for the name of Khushwaqt appears to have been borne not solely by the founder of the family ruling Yāsīn and Mastūj since the beginning of the eighteenth century, but also by at least two of his descendants.[10]

Close above this spot the track took us to the moraine on the east side of the much-crevassed glacier that descends from the pass. After scrambling up this to an elevation of nearly 14,000 feet, we crossed the glacier in a zigzag line to avoid crevasses. Further progress lay along its snow-covered western moraine, past precipitous cliffs and avalanche slopes, until easier ground was gained at about 14,600 feet on snow-beds flanking the head of the glacier. At last, after four hours' steady climbing, we reached the broad and flat expanse of snow that forms the crest of the pass (Fig. 43). The reading there taken with the mercurial mountain barometer indicated a height of 15,250 feet, closely approximating to that recorded in the Trans-frontier map sheet (15,380 feet). Ascent of glacier to Darkōt pass.

This great *firn* bed was the same to which my ascent of May 17, 1906, had brought me, and the full description then recorded in my Personal Narrative[11] makes it unnecessary to note further topographical details about this remarkable pass. It will suffice to mention that though the gathering snow clouds soon deprived me of a full view to the south, I was once more greatly struck by the contrast which the steep glacier bed on that side, confined between precipitous spurs, presented to the wide snowy expanse of the summit and to the gentle slope of the mighty ice stream flowing down from it towards the Yārkhun gorges (Fig. 48). It was easy for me to realize again on the spot the feelings of dismay which filled Kao Hsien-chih's Chinese 'braves' when they had been brought to this height and found what a descent lay before them, and to appreciate the great qualities of their leader, who by combined boldness and stratagem assured final success in his adventurous enterprise. Kao Hsien-chih's crossing of Darkōt.

Section III.—FROM THE YĀRKHUN HEAD-WATERS TO THE TĀGH-DUMBĀSH PĀMĪR

On the top of the Darkōt pass I was met by the late Captain H. F. D. Stirling, of the 57th (Wilde's) Rifles, then commanding the Chitrāl Scouts and officiating as Assistant Political Agent in Chitrāl. The hardy Mastūjī porters whom that young officer, himself an expert mountaineer, had brought up in person were most welcome. But less so the information he gave me that the north-eastern of the two glacier routes from the Darkōt to the Yārkhun valley had been blocked for the past three years by impracticable *bergschrunds* which had formed above the foot of the glacier. When discussing Kao Hsien-chih's crossing of the Darkōt in *Serindia*, I have had occasion to call special attention to the interesting orographic fact that from the great *firn* beds on the very top of the pass there descend northward two separate glaciers filling valleys which diverge at right angles.[1] I have also shown there reasons for the belief that Kao Hsien-chih's route lay over the north-eastern glacier, which descends the Kachil valley and ends a short distance above the grazing ground of Showar-shur on the uppermost Yārkhun river. Glacier routes from Darkōt pass.

This route, which conveniently connects with the low Shawitakh pass leading across the Oxus watershed close to the east of the Barōghil saddle, was described by reliable reports as the easier of the two routes previous to the glacier change above mentioned. It was then regularly used Route to Showar-shur and Shawitakh pass.

[10] Cf. Biddulph, *Hindu Koosh*, p. 153, genealogical table.
[11] See *Desert Cathay*, i. pp. 57 sqq.

[1] Cf. *Serindia*, i. p. 56.

by traders between Yāsīn and Wakhān, and its practicability for laden transport was proved by the fact that the Pāmīr Boundary Commission of 1895 followed it both going and returning, though out of the 600 ponies that accompanied them a number were lost. From what I subsequently learned from Wakhī graziers at Showar-shur I conclude that it was probably a recent advance of the glacier pressing against the rock walls near the narrowing mouth of the Kachil valley that had caused this north-eastern route from the Darkōt to become completely closed to traffic for the time being. I was reluctantly obliged, in consequence, to descend by the north-western glacier, with which my visit of 1906 had already acquainted me. Though, owing to the lateness of the season, there was now no risk of avalanches, yet the difficulties encountered in the shape of crevasses, huge moraines, &c. (Fig. 48), were sufficient to render this route, in its present state, quite impracticable for laden animals. Passing my old camping-place above Vedīn-kōt we managed, however, to reach by nightfall the grazing ground of Chikmar-robāt below the Barōghil saddle.

Choice of route through Hunza.

Having thus reached the Yārkhun head-waters, our easiest route to the Chinese border would have led across the Barōghil to Sarhad on the Oxus and thence past the Afghān Pāmīrs by the uppermost Āb-i-Panja. This was the line I had followed in 1906. But apart from the fact that its use would have required the special permission of H.M. the Amīr of Afghānistān, my desire to see new ground was against it. The only alternative was to follow a parallel route by which westernmost Hunza could be gained across the head-waters of the Yārkhun and Karambār rivers and over the high watershed range to the east of the latter. It would certainly be a very difficult route, and I had all the more reason to feel grateful for the effective arrangements made by Captain Stirling in the matter of transport. He himself, as an enthusiastic mountaineer, took pleasure in sharing the toils of those four days of hard climbing and marching. It affords me melancholy satisfaction to record here my grateful remembrance of all the friendly help given me by this zealous officer of a famous Frontier regiment; he was destined never to gain the chance of exploration that he longed for, but to lay down his life for his country three years later after distinguished service in France and Mesopotamia.

Help of Captain H. F. D. Stirling.

Route by Karambār headwaters.

For a variety of geographical reasons the ground we traversed on two long marches past the glacier sources of the Yārkhun and Karambār rivers could never have witnessed historical events of importance. The great elevation, from about 12,000 to 14,000 feet, of the main valleys on either side of the Karambār saddle precludes cultivation. The close vicinity of numerous large glaciers—the largest of them, descending to Showar-shur from the south-east, is shown by the map[2] to extend over a direct distance of some 22 miles—must make climatic conditions on this high ground more severe than they would be at a corresponding elevation on the Pāmīrs. Moreover, though of easy approach from the side of Sarhad and uppermost Wakhān, the area containing these head-waters represents a *cul-de-sac*. From Hunza it is separated by a very high ice-clad range over which communication is possible only by the Chillinji pass, some 17,500 feet above sea-level. This can be crossed by men on foot for a few summer months only, and even then, as my experience showed, under exceptional difficulties.

Karambār valley difficult.

To the south, along the Karambār or Ashkūman valley, there is no practicable route during the spring and summer. The extremely narrow gorges below the Chillinji glacier are then for several marches completely filled by the river, and the rock walls on either side are sheer precipices impassable for any but cragsmen unencumbered by loads. Even in winter the track leading down the valley to the Gilgit river at Gākuch is extremely difficult, and at that season communication with Wakhān across the passes northward is blocked by snow. It is only for a few weeks in the early spring and autumn that it is possible to follow the route leading up the Karambār valley to the north

[2] Cf. Northern Trans-frontier sheets No. 2 SW. and SE.; also map in Curzon, *Pāmīrs*.



47. PANORAMIC VIEW FROM KARAMBĀR PASS TOWARDS SOUTH AND SOUTH-WEST

On left, eastern branch of Karambār glacier feeding Zhoe-sar lake; in middle, main Karambār glacier draining into Yārkhun river, on right, range overlooking Yārkhun headwaters.

48. GLACIER DESCENDING TO NORTH-WEST OF DARKŌT PASS, WITH ITS WESTERN FEEDERS.

Seen from northern moraine at an elevation of *circ.* 15,500 feet



49. CAMP AT MURGACH BELOW KARAMBĀR PASS.
Karambār glacier end seen on left.



50. VIEW TO SOUTH-WEST FROM BELOW KARAMBĀR PASS, SHOWING PEAKS ABOVE DARKŌT AND CHATIBOI GLACIERS.

51. PANORAMIC VIEW ACROSS HEAD OF CHILLINJI GLACIER, LOOKING EAST AND SOUTH-EAST FROM CAMP.

and across the Khora-bohrt pass (about 15,000 feet) to the Afghān Pāmīrs. Even then it is far from easy.

Wakhīs grazing on Yārkhun and Karambār rivers.

The geographical features just briefly indicated fully account for an interesting ethnographic observation made on my passage through the high valleys on either side of the Karambār saddle. They comprise extensive summer grazing grounds which on the west reach from below Barōghil-yailak close up to the saddle and to the east of it descend to below Shuiyenj, a total distance of well over 30 miles. I found these occupied exclusively by Wakhīs who annually come up with their flocks from Afghān territory on the Āb-i-Panja. Several considerable summer villages or 'Yailaks' are inhabited for four or five months in the year by such Wakhīs, who also cultivate land about Sarhad. These settlements are of old date, and clearly prove that notwithstanding the natural boundary formed by the Oxus–Indus watershed to the north and the political frontier between Indian and Afghān territory which follows the same line, the valleys at the head of the Yārkhun and Karambār rivers must ethnographically be considered as forming part of Wakhān. I may incidentally note that the attitude of the Wakhīs we met seemed to reflect full consciousness of this fact. We have here another illustration of what has been rightly observed in the alpine regions of Europe and elsewhere, viz. that difficult river gorges are often of greater importance as ethnographic boundaries, and as military barriers also, than the crest-lines of adjoining high ranges.[3]

Ascent to Karambār pass.

The long march that on August 30 took us from the foot of the Barōghil saddle to Murgach, close under the Karambār pass, led throughout over easy ground distinctly Pāmīr-like in character (Fig. 50). Between Chikmar-robāt and the point where we struck the route leading up from Showar-shur to the Shawitakh I noticed abundant signs of former glacier action in the form of ancient moraines and cirques. It was interesting to note in the midst of them an old watch-tower built by Wakhīs as a place of defence against Kirghiz raiders, who used to attack these grazing grounds from the side of the Little Pāmīr by crossing the Khora-bohrt and the Karambār passes. On ascending to the latter next morning (Fig. 49) I was able to examine more closely the interesting instance of bifurcation by which the glacier to the south of the pass, and almost astride of it, discharges its drainage partly towards the Yārkhun river, itself a feeder of the Kābul river, and partly into the Zhoe-sar lake forming the head of the Karambār river and thus draining into the Indus. The photographic panorama (Fig. 47) illustrates the configuration of the ground to the south and on either side of the pass. The latter is represented by an almost imperceptible watershed between old moraines of the glacier; our barometrical observations indicated for it an elevation of approximately 14,420 feet (against 14,060 feet of the map). The eastern branch of the glacier was found much reduced and manifestly in actual course of retrogression. But a small stream issuing from its snout still helps to feed the lake from which the Karambār river takes its rise (Fig. 56). It is significant

Glacier bifurcation on Karambār pass.

[3] Cf. my remarks concerning the separation in political and linguistic respects of the Zēbak–Ishkāshm tract from the rest of the Upper Oxus (Āb-i-Panja) valley, in the introduction to Sir George Grierson's *Ishkāshmī, Zēbakī, and Yāzghulāmī*, p. 4.

Somewhat similar conditions may be observed in the northern portion of Hunza territory, appropriately called 'Little Guhjāl', i. e. 'Little Wakhān'. It is separated from Hunza proper by the extremely difficult river gorges below Ghulmit (cf. *Ruins of Khotan*, pp. 44 sqq.), and its population consists almost exclusively of Wakhī immigrants from beyond the high watershed range to the north.

Here it may conveniently be noted that during recent times this Wakhī immigration across the main Hindukush watershed has extended even farther down the Karambār valley. Small Wakhī settlements composed mainly of refugee followers of the 'Alī Mardān Shāh, the former ruler of Wakhān, are now to be found from Bohrt to Īmit, below the difficult gorges of the Karambār river to which reference has been made in the text above. These ethnographic changes of modern date are of interest as indications of a progressive infiltration of an Iranian-speaking element to the south of the Hindukush. The same is observable also in the Lutkhō tract of Chitrāl, south of the Dōrāh pass, where Yidghāh, a Galcha dialect, is spoken by old immigrants from Munjān; cf. *Serindia*, i. pp. 26 sq.

that this lake, situated within the political border of India, is known to the Wakhīs also by the Turkī designation of Ak-kul, the 'White Lake'. It could clearly be observed that the lake, which is considerably larger than appears from the map, owes its origin to the fact that a big glacier near its eastern end once pushed its moraines from the south right across the valley.

Glaciers below Shuiyenj.

About eight miles from the pass, the valley contracts below the last grazing grounds of Shuiyenj. Beyond this the track led past the snout of a large glacier on the south, which has piled its ice against the rocky slopes opposite. The river thus blocked had cut its way in a big tunnel below it (Fig. 53); this advance of the glacier beyond the river bed was said to have taken place only two years before. Less than two miles farther down, the river bed, broad as it was here, was completely blocked by a much larger glacier descending from the south, which had to be traversed for a distance of about a mile and a half. What with the care needed in its crossing and the difficult progress beyond, over boulder-strewn slopes on the right bank, it was long after nightfall before we reached the small jungle-covered space known as Sokhta-robāt, which forms a usual camping-place opposite the approach to the Khora-bohrt pass.[4]

Khora-bohrt and Irshad passes.

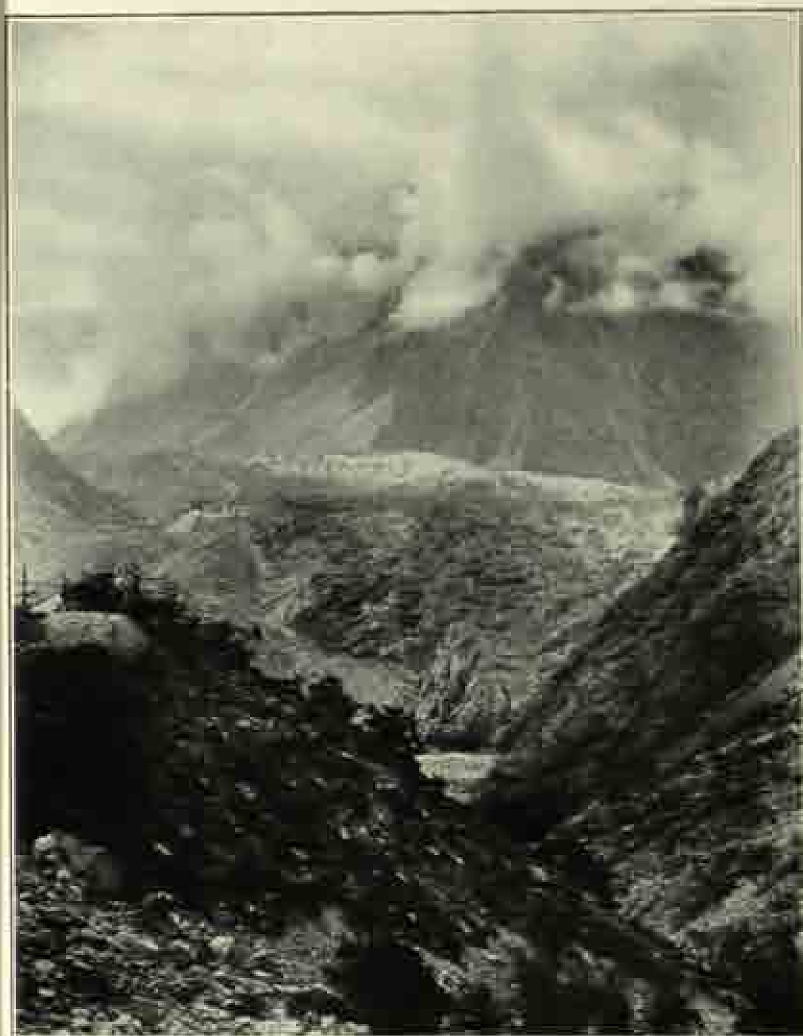
Had it been possible for me to cross by this pass into the Lupsuk valley northward, which drains into the Āb-i-Panja some distance below Bōzai-gumbaz, we could thence have reached Hunza territory over the Irshad pass, leading like the Chillinji pass to the head of the Chapursan valley. We might thus have been spared a very trying piece of mountaineering, and probably a day's march as well. For both passes, about 15,000 and 16,000 feet respectively in height, are clear of glacier ice and practicable during the summer and early autumn for laden animals, and even longer for men on foot.[5] But without the Amir's permission this passage, leading through a forlorn alpine corner of easternmost Afghān territory, was closed to a servant of the Indian Government. As it was, I had occasion to feel very grateful when, on proceeding on September 1st down the Karambār river, I found a contingent of hardy Wakhī porters awaiting us at the point where the snout of the big Chillinji glacier debouches into the river gorge (Fig. 52). Without their timely arrival from the small settlement of Wakhī refugees lower down, as had been arranged through the Gilgit Agency, farther progress would have been impossible. After ascending for about four miles along the north edge of the glacier (Fig. 51) over old moraines thickly covered with Juniper and other dwarf tree growth, we camped that night at an elevation of about 12,500 feet.

Ascent of Chillinji pass.

The ascent made on September 2 to the Chillinji pass proved a difficult piece of mountaineering. The snowy weather that had prevailed all through August had rendered the very steep snow slopes to be climbed to the north-east of the glacier exceptionally trying. There were risks of avalanches to be faced in the confined gully up which lay the final ascent of some two thousand feet (Fig. 57), and the chance of some mishap was increased by the fact that the pass had not been traversed by any one for a considerable number of years. Only one old man among the Wakhīs sent with us had ever been across. It took eight hours of laborious climbing, mostly through deep snow, before our party, numbering forty men in all, safely reached the col. Barometrical observations indicated for it an elevation of 17,520 feet. The view that the pass offered over the big glaciers filling the head of the Chapursan valley and along the ice-crowned range forming the watershed on the north towards the Āb-i-Panja sources and the Tāgh-dumbāsh Pāmīr, was grand and extensive. But the icy gale sweeping the exposed col made even a short rest difficult

[4] Its name as given to me by the Wakhīs sounded Khora-vursht.

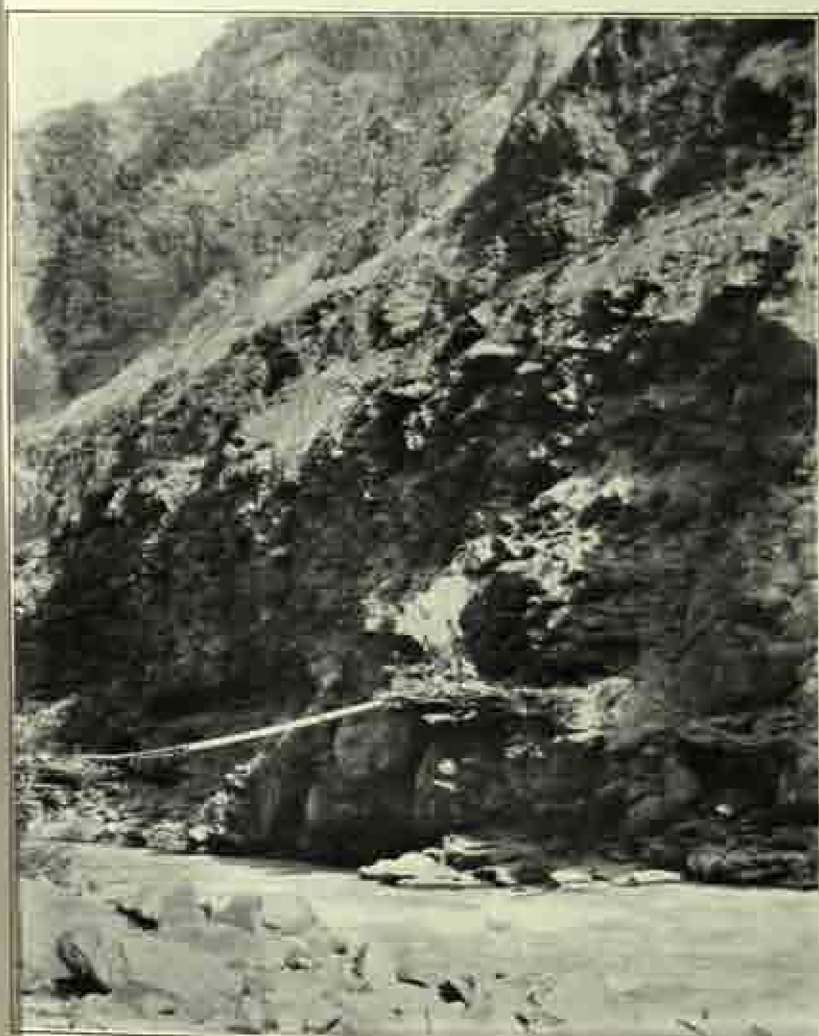
[5] It is of interest to note that the existence of the route leading up the Karambār valley and across the Khora-bohrt pass to the Pāmīrs was duly reported by Mughul Bēg about 1789–90; cf. Raverty, *Notes on Afghānistān*, pp. 189 sq. That very observant traveller notes: 'The climate of this dara'h ('Ana-Sar) is exceedingly severe, and uncongenial to the health of travellers. By it you can proceed towards Yār-ḳand and Kāshghar.'



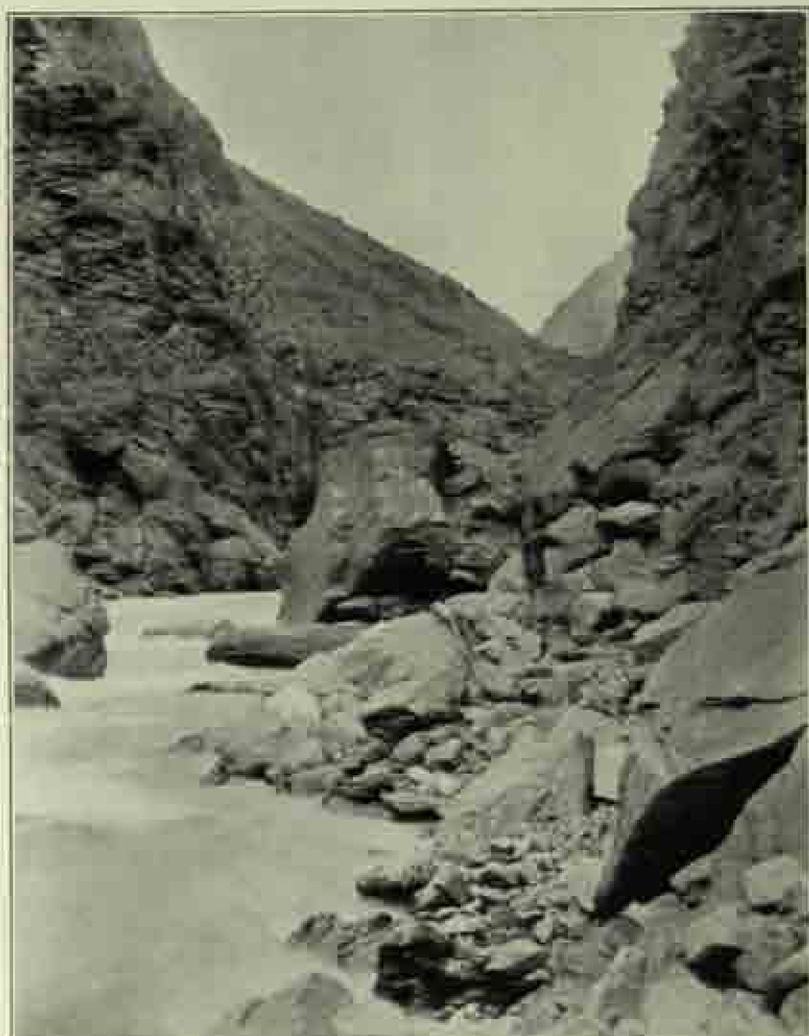
52. TERMINAL PORTION OF CHILLINJI GLACIER SEEN ACROSS KARAMBĀR RIVER.



53. GLACIER PUSHED ACROSS KARAMBĀR RIVER BELOW SHUIYENJ.



54. BRIDGE AND 'RAFIK' ON KARA-TĀSH RIVER AT BARUCHAR.



55. CAMELS DESCENDING KARA-TĀSH RIVER GORGE AT ARA-MŪNTE.



56. VIEW EASTWARDS ACROSS LAKE FED BY EASTERN BRANCH OF KARAMBĀR GLACIER.



57. ROUTE OF ASCENT TO CHILLINJI PASS.
Pass, about 17,500 feet above sea-level, marked by arrow.



58. ZIĀRAT OF BĀBA GHUNDI, CHAPURSAN.



59. FORT VILLAGE OF RĒSHIT, CHAPURSAN VALLEY.



60. SNOUT OF KHŪZ GLACIER AT HEAD OF CHAPURSAN VALLEY.



61. SNOUT OF GLACIER EAST OF CHILLINJI PASS, ABOVE BUATTAR.

and enforced a hurried farewell to Captain Stirling, who had insisted on sharing our toils as far as this.

Fortunately the descent to the east proved less trying; for the huge *névé*-beds at the head of the glacier below afforded an easy slope, and when after some three miles' progress in soft snow the glacier proper was reached, we found most of its crevasses sufficiently covered with fresh snow. Farther down we could follow the line of the main lateral moraine on the north, and after a descent of five hours a dry spot was found under its shelter where it was possible to bivouac in safety. The bitter cold of that night at an elevation of over 15,000 feet made me anxious about some of our Wakhī porters whose loads had caused them to lag behind; but they too turned up safely in the morning, having wisely kept moving all through the night. It was a source of great satisfaction to me that my feet, in spite of loss of toes and impaired circulation, results of the frost-bite accident at the close of my second journey, were still equal to a thirteen hours' struggle over snow and ice at great elevations.

Glacier descent east of Chillinji pass.

The snout of the glacier (Fig. 61) was not passed until after another four miles' steep descent in the morning. On arrival in the valley below at the high grazing ground of Buattar I was glad to find fresh transport from Hunza awaiting us. Once again the arrangements made weeks ahead through Hūmāyūn Bēg, the Wazīr of Hunza, my old acquaintance of 1900, had not failed to assure rapid progress. After two miles' easy descent from Buattar, the path struck the side of the mighty ice-stream of Khūz, which comes down from the high range on the south and completely fills the bottom of the main valley as it trends eastwards. Passing the narrow side valley to the north-west, up which lies the route to the Irshad pass previously mentioned, we skirted the Khūz glacier for a distance of more than four miles before its snout was reached in the now widening valley bottom (Fig. 60) at an elevation of about 12,000 feet. Only a little beyond, on the alluvial fan of Yarz-yarz, the first signs of former occupation were met with in the shape of abandoned fields and decayed huts. They were to prove a characteristic feature of the Chapursan valley at many points farther down. Some four miles beyond we halted at Bāba-ghundī, marked by a much-frequented Ziārat, said to be the most famous throughout Hunza (Fig. 58). Here, too, at an elevation of 11,600 feet, there is no permanent occupation; but there are some oat-fields, which, we were told, had been brought under cultivation again during the lifetime of the father of the present Mīr of Hunza.

Head of Chapursan valley.

A long but easy march on September 4 down to Spandrinj allowed me to see the greater portion of the Chapursan valley and realize its peculiar character. In spite of the great height of the ranges to the north and south, rising to peaks of over 22,000 feet and as yet but very imperfectly explored, the bottom of this valley is more open and unobstructed than any other part of Hunza. Its gentle slope is sufficiently indicated by the fact that Spandrinj lies at an elevation of only 1,600 feet or so less than Bāba-ghundī, though at a distance of about twenty-five miles from it by road. The Chapursan valley, notwithstanding the great moraines that glaciers on the south had once pushed down into it, contains a larger area of fairly level and easily irrigated ground than probably all the rest of Hunza put together. It was therefore of distinct geographical interest to note the extensive areas of abandoned cultivation that we passed between Bāba-ghundī and Spandrinj. Neither want of water for irrigation nor present climatic conditions seem to furnish any adequate explanation for their abandonment. It is true that below the outflow of the big Ishkuk glacier there is ground where cultivation has, according to local tradition, been destroyed by glacier detritus brought down through a change in the flood beds. But this factor is absent elsewhere, and does not account by itself for the virtual abandonment of a valley that, with occupation such as is found on corresponding ground in Wakhān, might support a number of comparatively

Abandoned cultivation in Chapursan valley.

populous villages. Reoccupation by Wakhī settlers (Fig. 76) is recent and proceeds but slowly, the total number of houses in the valley probably not exceeding thirty.

Kao Hsien-chih's return through Chapursan valley.

This change of conditions has its exact parallel in what I had occasion to observe about the ancient cultivation in the upper Yārkhun valley about Shuyist, the *A-shê-yü-shih-to* of the Chinese Annals, mentioned as the 'capital' of Chü-wei during T'ang times.[6] It presents a direct antiquarian interest in view of the probability, which I have indicated elsewhere, that Kao Hsien-chih's route on his return from Little P'o-lü to the uppermost Āb-i-Panja led through Hunza.[7] If this assumption is correct, it may be safely concluded on general topographical grounds that the Chinese commander made his way through the Chapursan valley and across the Irshad pass; for this is the most direct route between Hunza and Wakhān. Besides being some eighteen miles shorter than the alternative route by the Kilik and Wakhjīr passes, it crosses only a single watershed, and that not higher than the Wakhjīr pass, between the sources of the Āb-i-Panja and the Tāghdumbāsh river. The conclusion just indicated finds additional support in what I was able to note of the openness of the Chapursan valley and its former local resources.

Local legends of Chapursan.

It was interesting to observe how the traces of former occupation are also reflected in local legends attaching to particular spots. Thus, after passing several sites of abandoned cultivation below Bāba-ghundī, I was shown, to the west of a vast lateral moraine left behind by the now receded Ishkuk glacier (Fig. 64), a well-marked cirque that once held a lakelet; tradition places here the residence of a nine-headed monster, resembling a Nāga by the description given to me, which by its daily food exactions of one human being and seven sheep caused this part of the valley to be deserted. The destruction of the monster is ascribed to Imām Muḥammad Bāqir, the great saint of the valley worshipped at Bāba-ghundī. The whole alluvial fan below the outfall of the great stream that issues from the Ishkuk glacier is supposed to have once been cultivated. But only at its eastern edge did I come upon the first sign of reoccupation; this had been started a few years before by three families settled at the old site of Zudākhun. Another extensive area of former cultivation three miles farther down and a short distance above the few houses of Sipenj is known as Kampīr-i-dior. Local legend connects it with the story of an old woman (*kampīr* in Wakhī) who alone would offer food to Bāba-ghundī and thus saved herself from the saint's wrath, which overwhelmed and buried the whole village under stones and detritus.[8]

Hamlets in lower Chapursan.

A mile or so below Sipenj, which in spite of abundant arable land contains only seven families, a rock known as Roshtigār bears natural markings distinctly resembling *pādukās*. They are reverenced now as footprints of Bāba-ghundī. We have evidently here a case of continuity of local worship reaching back to pre-Muhammadan times. The fort village of Rēshit, some three miles lower down, with its dozen houses (Fig. 59), represents the chief place of Chapursan; its quaint circumvallation recalls the time, not very remote, when the valleys of northernmost Hunza were still exposed to Kirghiz counter-raids from the north. From this point all the way down to Spandrinj, a distance of some eight miles, I noticed abundant traces of abandoned cultivation, including an old canal, along the fertile alluvial fans which line the right bank of the river.

Across Kermin pass to Murkushi.

From the site of Spandrinj, which is bordered by jungle and is now used as a grazing ground, we made our way on September 5th, across the Kermin pass, about 13,600 feet above sea-level, into the Derdi valley. Descending this we struck the well-known route leading up the main valley of Hunza at the old tower known as Tōp-khāna, some five miles above the village of Misgar. Here I found myself on ground that I well remembered visiting on my first approach in 1900 to

[6] Cf. *Serindia*, i. pp. 50 sqq.

[7] See *ibid.*, i. p. 54, note 3; also *G.J.*, 1922, February, pp. 128 sq.

[8] Cf. the Kashmīr legend already referred to above, p. 25, about the Nāga Suśravas and *Ramaṇyāṭavī*.

the Chinese border on the Pāmīrs.[9] Long after nightfall the same day we reached my old camping-place at Murkushi, where the two available routes to the Tāgh-dumbāsh Pāmīr, via the Kilik and Ming-taka passes, diverge. Here I found Surveyor Muhammad Yāqūb and Naik Shamsuddīn of the 1st Sappers and Miners, who had safely arrived with our heavy baggage by the route via Gilgit and Hunza.

Crossing Ming-taka pass.

Though the Kilik pass which I crossed in 1900 is certainly the easier, except during the months of deep snow, I decided for the sake of seeing new ground to take the route across the Ming-taka pass.[10] It leads up along the moraine of a glacier considerable in size (Fig. 62) and offers splendid views towards the maze of fantastically serrated peaks to the south (Fig. 63). As this route, too, is well known, there is no need to describe here the ascent, which by midday of September 7 brought my now reunited party to the top of the pass (Fig. 65) and thus to the border of Chinese Turkestan. Our mercurial barometer indicated for the Ming-taka pass an elevation of 15,650 feet. In the open high valley beyond, with its true Pāmīr character, I found myself once more on ground with which my two previous journeys had made me familiar. But how easy seemed the routes I had then followed, by comparison with the tracks which had brought us this time to the westernmost corner of China! Barely five weeks had elapsed since I left the Kashmīr valley, and during this period of strenuous marching with only two days of halt, we had crossed fifteen passes between 10,000 and 17,500 feet in height. The total distance we had marched amounted to about 520 miles, and of this nearly four-fifths had of necessity been done on foot.

Section IV.—IN THE VALLEY OF TĀSH-KURGHĀN

Descent by Tāgh-dumbāsh river.

The four rapid marches which carried me on September 8–11 down by the Tāgh-dumbāsh river to Tāsh-kurghān, the Sarīkol 'capital', led necessarily over ground already familiar to me. In *Ancient Khotan* and in *Serindia* I have fully discussed the early notices bearing on the history of Sarīkol and such ancient remains as I was able to trace on my preceding visits.[1] Similarly a descriptive account of the chief geographical features presented by the main valley and of its present population will be found in the corresponding chapters of my personal narratives of those journeys.[2] Hence I am able to restrict the record of my third passage through Sarīkol to brief notes on some antiquarian remains not previously noticed and a few supplementary observations of a geographical interest.

Resumed cultivation on Tāgh-dumbāsh.

Taking my observations as they occurred in the course of my route, I may first briefly mention that, descending along the Tāgh-dumbāsh or Tāsh-kurghān river, as it flows in its initial stage from west to east, I came upon a mark of former extensive glaciation at a point known as Tōke-sakrik, some three miles below Payik-karaul;[3] a big terminal moraine here fills the mouth of the side valley that descends from the high snowy range on the south. The appearance of this old moraine is such as to leave no doubt about its being, geologically speaking, of quite modern date. Yet within two miles below it, at an elevation of about 12,000 feet, I found further confirmation of what I had before had occasion to observe, that cultivation once extended much higher up the valley.[4] On the small grass-covered plain of Chādir-tāsh old terraced fields had in recent years been tilled again by Kirghiz for a brief period, and on the opposite (left) river bank,

[9] See *Ruins of Khotan*, pp. 53 sq.

[10] The name *Ming-taka* (usually but wrongly spelt *Mintaka*) applies properly to the valley (Ming-taka Jilga) that is followed from the pass to the north-east down to its junction with the Tāgh-dumbāsh river. It means literally the '[valley of the] thousand mountain-goats'.

[1] Cf. *Ancient Khotan*, i. pp. 22–40; *Serindia*, i. pp. 72–6.

[2] See *Ruins of Khotan*, pp. 57 sqq.; *Desert Cathay*, i. pp. 89 sqq.

[3] See Map No. 3. c. 2.

[4] Cf. *Serindia*, i. p. 73.

near Kizil-tam, an old canal could be clearly made out for a distance of about three-quarters of a mile. At Koshun-kör, a little lower down on the left bank, I found direct evidence that cultivation had actually been resumed since my visit in 1906. This had happened also at the mouth of the Nullah known as Kara-jilga, some three miles above Pisling, the southern limit at that time of Sarīkol cultivation. There is thus every reason to suppose that if settled conditions continue in Sarīkol, such as have prevailed since 1891, when raids from Hunza ceased, increasing population will lead to the gradual reoccupation of all arable ground right up to the Tāgh-dumbāsh Pāmīr.

Changes in cultivation at Dafdār.

The great change that has already taken place farther down the valley was impressed upon me when I crossed from my camp at Pisling (11,530 feet above sea-level) to the village of Dafdār, just opposite on the right bank.[5] My immediate object was to trace from there the line of the ancient canal known as *Faryād-ariki*, 'Faryād's canal', famous in local lore and the subject of a curious legend; I had heard of this canal in 1900,[6] but neither then nor in 1906 had I sufficient time to examine it. But my attention was first arrested by the great change in Dafdār itself. Where in 1900 I had seen only a cluster of hovels containing eight or ten families mainly occupied in grazing cattle, I found now some forty homesteads as substantial as those seen about Sarhad. They were widely scattered over an area of well-tilled fields and most of them surrounded by flourishing young plantations of poplars and willows. The total of cultivated ground now extended over more than four miles from south to north with a width for the most part of about a mile. Owing to the abundance of fertile soil and the scarcity of labour the fields are sown only in alternate years with the barley, oats, or peas that form the main crops. Yet there was said to be more than enough water to irrigate all the land taken up, a statement borne out by the luxuriant grass that covered all the waste ground commanded by the canal, as well as by the large stacks of fodder grass stored on the house-tops for the winter.

Canal of Faryād partially restored.

This striking expansion of Dafdār was explained by my old Sarīkol acquaintance Rashīd Bēg, who had once more been sent to escort me down to Tāsh-kurghān, as a direct result of the partial reopening of that same ancient canal that I had come to look for. Not very long apparently after my passage in 1900 the military 'Amban' of Tāsh-kurghān had effected a clearing of the head portion of the old *Faryād-ariki*. It was said to have taken him three months' labour with fifty Chinese soldiers and about as many Tāsh-kurghān cultivators. He was energetic enough to camp on the spot and thus saw the work finished in one season. The restored canal, I was told, received its water from the outfall of the Zankan-jilga, which, as the map (No. 3. D. 2) shows, descends from a portion of the snowy range to the south-east, where it rises to peaks reaching about 18,000 feet. The stream draining the valley furnishes not only an abundant supply of *ak-su*, or water from melting snow and ice, but also a permanent discharge of *kara-su* from springs.[7] At the point where I examined the restored canal its alignment ran fully twenty feet above the level of the shallow, carelessly cut channel, then dry, that previously irrigated the then scanty fields of Dafdār. It carried at the time about 2·75 cubic feet of water per second. The width of the inundated belt on either side of the actual channel, however, clearly showed that the original canal bed had been intended to carry a much larger flow of water, but had silted up since and been only partially cleared. This conclusion was completely confirmed by the subsequent inspection of the ancient canal bed where it had not been touched.

Extension of Dafdār cultivation.

For over three miles we followed the canal winding along the foot of a low conglomerate terrace and irrigating the gently sloping ground towards the river bed. The way in which water was

[5] See Map No. 3. C. 2.

[6] Cf. *Ancient Khotan*, i. p. 38. *Faryād* is the local Sarīkolī pronunciation of the name *Farhād* so familiar in Persian legend.

[7] For the terms *ak-su* ('white water') and *kara-su* ('black water'), cf. *Ancient Khotan*, i. p. 94.



62. HEAD OF MING-TAKA GLACIER, LOOKING SOUTH-EAST FROM BELOW PASS.



63. VIEW TO SOUTH FROM MING-TAKA PASS.



64. TERMINAL PORTION OF ISHKUK GLACIER, CHAPURSAN.



65. ASCENT TO MING-TAKA PASS.

allowed to overflow the canal bank showed that the supply was more than abundant for the land actually in cultivation. It had been occupied exclusively by Wakhī immigrants from the uppermost Āb-i-Panja who had drifted across the Wakhjīr pass in small batches. What with assured local produce and summer grazing on the Tāgh-dumbāsh near by offering abundant facilities for raising flocks, they were all said to have grown into 'Bais' or people of comparative substance. The ground beyond the northern point at which Dafdār cultivation now ends presents the same character of an easily irrigated alluvial belt, and, in view of the ample water-supply available, further extension of cultivation seemed certain, given conditions of tranquillity.

Line of old canal traced.

Not far from the actual edge of the cultivated area, there was a bifurcation of the old canal. The lower branch, according to the statement of Rashīd Bēg and other Sarīkolīs accompanying me, could be traced past the grazing grounds of Rang and Taghash down to Tāghlak-gumbaz. The other branch, which was said to continue to below Toghlān-shahr opposite Tāsh-kurghān and which under Rashīd Beg's guidance I proceeded to follow, kept a course, as it proved, high up on the alluvial fans at the mouth of the successive side valleys. From the start it could be traced quite easily across the gentle slope of these fans as a continuous terrace usually about ten feet wide. It showed up with still greater clearness where, with a carefully adjusted alignment, it wound round the sides of the shallow ravines that carry down the drainage of the side Nullahs descending from the east. There, owing to the less easy slope, supporting walls were needed to carry the canal, and these, carefully built of large unhewn stones, were found in many places still standing to a height of six to eight feet.

Original dimensions of canal.

About two miles below the northern limit of Dafdār cultivation we came upon a particularly well-preserved bit of the ancient canal, where it bends in a narrow loop round a small sheltered Nullah. Here the original dimensions of the canal bed were still to be seen with perfect clearness. The width between the tops of the embankments on either side measured 17 feet. The present depth in the centre was about 2 feet 4 inches. Making no allowance for the silting up that undoubtedly must have taken place since the canal fell into neglect, and assuming a current of one foot per second, approximating to that actually observed at Dafdār, these measurements would suggest a volume of over twenty cubic feet per second. I noted that, with the exception of a breach of about ten feet at the point of crossing the drainage bed, the stretch of canal that winds round the small Nullah, about 100 yards in length, was practically intact. For some two and a half miles farther the canal could be traced very clearly across the gently sloping 'Dasht' of Shilbili. As its line passed into ground of an increasingly fertile character, Rashīd Bēg pointed out small distributary channels branching off at right angles, and his trained eye was probably also right in recognizing lines that once divided fields.

Aridity of Sarīkol since ancient times.

Such remarkable preservation might, perhaps, at first sight suggest doubts as to the antiquity of the irrigation system represented by the 'Faryād-ariki'. But quite apart from the popular Sarīkol legend which attributes to it a quasi-mythic origin, the extreme dryness of the climate in this mountain region must be borne in mind. An illustration of this is to be found in the condition of the ancient mountain fastness now known as Kiz-kurghān and situated at the great bend of the river some eight miles above Pisling as I observed it in 1906.[7] This was already a ruin of great antiquity in the days of Hsüan-tsang, who records at length the legend connecting it with the fabulous descent of the dynasty then ruling Sarīkol. When describing these remains I pointed out that nothing but the exceptional dryness of the climate throughout historical times 'could account for their survival in so exposed a position from so early a date'.[8] We have an indirect

[7] See *Serindia*, i, pp. 73 sqq.

[8] Cf. *ibid.*, i, p. 75. The walls, constructed of sun-dried bricks and standing above extremely precipitous slopes, rise still to a considerable height. The Juniper brushwood used

testimony also of the aridity of the climate in a curious notice of Sung Yün about Han-p'an-t'o or Sarīkol. He specially mentions that its inhabitants had to catch watercourses, i. e. to irrigate, in order to do their sowing, and dilates upon their incredulity when told that in China cultivators relied upon rainfall for this purpose.[10]

Faryād-ariki traced towards Tāsh-kurghān.

From the little grazing oasis of Rang we turned up the wide alluvial fan of the Taghash valley in order to visit the old 'Kurghān' at its mouth, of which I had first heard on my passage along the left river bank in 1906.[11] This 'site' was found to consist merely of the ruins of some rubble-built huts of uncertain date. But the detour rewarded me in a grand view to the north across the main Sarīkol valley and Tagharma as far as the huge snowy dome of Muztāgh-ata and its glacier-girt buttresses. From Jurgāl-gumbaz, where our camp stood that evening, the 'Faryād-ariki' continued to be traceable, in a clear and almost unbroken line, as we marched on September 11 down to Tāsh-kurghān. Rashīd Bēg was also able to point out to me, on the left bank, the head of an ancient canal which once took off from the river opposite Jurgāl-gumbaz and irrigated all the alluvial plateaux on that side right down to Ak-tam. What small patches of ground have now been brought under cultivation again at that point or near the mouth of the Pit and Vanaizraf 'Jilgas' are all irrigated from side-streams.

Site of *Bāzār-dasht.*

Farther down, after a ride of about eleven miles from Jurgāl-gumbaz, we reached the head of the wide bare plain that local tradition knows, under the significant name of *Bāzār-dasht*, as the site of a large ancient settlement. The 'Faryād-ariki' keeps above it along the foot of a well-marked alluvial terrace; but on moving across the Bāzār-dasht I noticed the traces of what evidently had been a large branch canal, as well as of several distributaries. I observed that the plain is here covered with a layer, three to four inches thick, of small stones, below which is found soft fertile soil, evidently riverine loess. This distinctly recalled the character of the ground surrounding the Mīrān site far away near Lop-nōr,[12] which I had noted in 1907. The inference that here too the condition of the surface is due to deflation was soon confirmed by my examination of the structural remains that still survive at Bāzār-dasht, of which I had already heard in 1900.[13]

Walls eroded by wind.

The badly breached fragments of a large and once massive walled enclosure in stamped clay, which I traced at a point almost opposite Ak-tam, as marked in Map No. 3. c. 1, betrayed only too plainly the effect of long-continued wind erosion. Of the circumvallation a length of about 190 yards could be made out on the north-west face, in broken sections of varying thickness, and one of about 60 yards to the south-west. Nowhere do the extant walls rise to more than three or four feet above the ground, and in many places they have been worn down so as to be almost flush with it. This advanced state of erosion points clearly to the considerable antiquity of the site; but no definite chronological indication could be found. As regards the local winds whose effect is so strikingly noticed on this bare plain, I may mention that according to the information received at Tāsh-kurghān they blow generally from the north and north-east and are often prolonged and of considerable force during the spring and winter. The rapid progress of their denuding effect on bare ground may be gathered from the fact that outside the gate of the small defensible post built by the Russians at Tāsh-kurghān I noticed a distinct lowering of the ground level through this cause since its construction about 1903.

Old canal near Toghlān-shahr.

A short distance below the north end of the Bāzār-dasht the bed of the river widens greatly, and it is from here that the canal takes off which at present carries water across the scrub-covered

for intervening layers survives in excellent preservation, not merely where it is still embedded in the mud plaster, but also where it strews the slopes below after disintegration of the brickwork.

[10] See Chavannes, *Voyage de Song Yun*, p. 23.

[11] Cf. *Serindia*, I. p. 76. The local name there noted as *Ghan* is more correctly spelt *Rang*.

[12] Cf. *ibid.*, I. p. 537.

[13] See *Ancient Khotan*, I. p. 39.

riverine flat to Toghlān-shahr, a collection of hamlets above and facing Tāsh-kurghān. The line of the Faryād-ariki keeps high and dry above it along the foot of the hill-side, until a small but conspicuous rocky ridge crowned by the tombs of Maulāī Iḥsāns (Fig. 71) causes a distinct drop in its level. From there onwards the ancient canal is carried on supporting walls along the foot of the cliffs, and in one place, towards the end of the ridge, is cut through the rock itself. Along this portion of its course the ancient canal has been repaired and utilized to carry to the southernmost area of Tughlān-shahr cultivation any water that remains available in the new canal. The old canal line, however, does not end there, but continues beyond to a wide alluvial fan known as *Jangal*, and was said to be traceable for a considerable distance farther down towards the point where the Tāsh-kurghān river makes its sharp bend to the east and enters the gorges of Shindī (Map. 3. c. 1). Where I was able to examine its course along the face of precipitous cliffs above the fan of Jangal, its width was five feet, and the supporting walls of big stones still rose in fair preservation to a height of eight or nine feet. On the fan itself the canal expanded to a width of fourteen feet or so between the crest of the banks, with a depth of three feet in the middle.

Antiquity of *Faryād-ariki*.

From the dimensions actually observed here it appears to me very probable that Sarīkol tradition is right in asserting that the Faryād-ariki in old times brought water not merely to the extensive area of this fan, but also to the arable lands which line the right bank of the river for miles below the big north-western spur of Mount Afrāsiāb. Thus the total length of this ancient irrigation work can be safely estimated at not less than fifty miles. The effort involved in its construction and maintenance presupposes a population and resources far greater than those to be found in modern Sarīkol. If we compare it with the description which Hsüan-tsang has left us of the *Chieh-p'an-t'o* of his own days,[14] it is difficult to avoid the conclusion that the times of Sarīkol's greatest prosperity lay then already far behind.

Ruined mounds near Jangal gumbaz.

While tracing the ancient canal nearly to its termination I was afforded an opportunity of paying a rapid visit also to some ruins that on my first survey of the old remains of Tāsh-kurghān had escaped me. About a quarter of a mile from where the Faryād-ariki passes to the southern extremity of the alluvial fan below Toghlān-shahr, as above described, there rises, close to the plateau edge overlooking the wide bed of the river, a Muhammadan saint's tomb known, with an adjoining cemetery of vaulted tombs, by the name of *Jangal-gumbaz*. Following the line of the old canal for another quarter of a mile farther northward, I came upon a large circular mound rising conspicuously above the gentle slope of the fan and skirted at its west foot by the canal, as seen in the site-plan (Pl. 2). The mound, composed wholly of clay, is undoubtedly artificial, and judging from its shape can scarcely be taken for anything else but a completely decayed Stūpa. Its diameter at the base is about 70 feet and its height 30 feet. Its condition and appearance recalled that of the Kurghān-tim Stūpa of Kāshgar.[15] It did not appear to have ever been opened. About 70 yards to the north of it there survive, also close to the canal, the remains of what I took to be the base, built in sun-dried bricks, of a small Stūpa of which the superstructure has been completely ruined. The extant mass of solid masonry measures 15 feet by 10 at the base and rises to 8 feet above the present ground level.

Ruins of walled enclosure.

About 160 yards to the NNW. of the last-named structure there extend close to the plateau edge the remains of a large walled enclosure of rectangular shape. Owing to the late hour I was unable to examine it closely; but during my busy day at Tāsh-kurghān I had a plan and photograph of it taken by Surveyor Afrāz-gul (Pl. 2; Fig. 70). The ruined enclosure measures about 193 by 83 feet and retains at three of its corners remains of round towers, about 10 feet in diameter.

[14] Cf. Julien, *Mémoires*, ii. pp. 209 sqq.; Watters, *Yüan Chwang*, ii. pp. 285 sq.; also *Ancient Khotan*, i. pp. 33 sqq.
[15] Cf. *Ancient Khotan*, i. pp. 74 sqq.; Fig. 14.

Gates are traceable near the middle of the longer sides facing north and south. The eastern side is adjoined by what appears to have been an outer enclosure, with a tower about 18 feet square at the north-east corner. The walls of the whole, varying from two to three feet in thickness, appear to have been built partly in large-sized bricks and partly in unhewn stone. Within the inner enclosure, which seems to have been utilized as a shelter by graziers within comparatively recent times, is a jumbled mass of ruined walls enclosing courts and rooms, of which the surveyor was unable to disentangle the exact disposition and character. Neither from his plan nor from my rapid inspection of the ruin am I able to form any definite opinion as to its origin and date. But considering that this ground below Toghlān-shahr has certainly been abandoned for a very long period, I am inclined to believe that the enclosure is old, but that it was probably repaired and adapted for temporary occupation in Muhammadan times. I may add in conclusion that some 300 yards farther down the plateau edge there is the ruin of another but much smaller walled enclosure, measuring outside some 53 by 26 feet, which from the bricks used appears to be of similar origin.

Antiquity of Tāsh-kurghān.

My single day's halt at Tāsh-kurghān on September 12th was more than fully taken up with manifold arrangements for transport, &c., in view of the intended division of my party a few marches farther ahead. What I was able to see once more of the old capital of Sarīkol or to learn about its present conditions did not modify the views concerning the antiquity of the site and the character of its extant remains[16] that I have recorded in connexion with my previous visits. I may, however, briefly mention that not more than a few hundred yards below the north-east foot of the ruined town site examined in 1900, the identity of which with the Sarīkol capital seen and described by Hsüan-tsang is not subject to doubt, I now noticed the presence of a Muhammadan shrine marked by a large ruined 'Gumbaz' and an ancient cemetery adjoining. The former is supposed to shelter the remains of Shāh Auliya, a renowned saint, whose grave attracts pilgrims from all over Sarīkol. Is it possible that this pilgrimage place is connected somehow by continuity of local worship with the 'convent remarkable for the height and largeness of its towers and pavilions' as well as for its majestic statue of Buddha, which, as Hsüan-tsang relates, an early king of Chieh-p'an-t'o had built at the site of the former royal residence in honour of the venerated teacher Kumāra-buddha?[17]

Section V.—BY THE KARA-TĀSH RIVER TO KĀSHGAR

Start from Tāsh-kurghān.

On September 13th I set out from Tāsh-kurghān for Kāshgar. I was anxious to use the chance offered by the season for exploring *en route* the Kara-tāsh valley, which lies on the most direct line from Sarīkol to Kāshgar but owing to special difficulties had never been surveyed. In order to reach it, it was necessary for the first few marches to follow again the main caravan route connecting Sarīkol with Kāshgar and Yārkand across the great southern buttresses of Muztāgh-atā. As I proceeded by it to the high plateau of Chichiklik via the Dershat valley I felt sure of being once more on the track of Hsüan-tsang.

Hsüan-tsang's route from Sarīkol.

Already on my passage of June, 1906, I had convinced myself that Hsüan-tsang's journey had led him across the Chichiklik.[1] But the route up the narrow Shindī valley,[2] which the early season had then obliged me to take, was not likely to have been that of the great pilgrim when he

[16] See *Ancient Khotan*, i. pp. 35 sqq.

[17] Cf. Julien, *Mémoires*, ii. p. 213; *Ancient Khotan*, i. p. 37. [I may correct here an error made in the last quoted passage when discussing Hsüan-tsang's notice about the royal residence at the capital of Chieh-p'an-t'o. The mention of 'an enclosure of some 300 paces' refers not to this place but to the ruined fastness of Kiz-kurghān.]

[1] Cf. *Serindia*, i. pp. 76 sqq.

[2] See *Desert Cathay*, i. pp. 97 sq.

travelled from Chieh-p'an-t'o via Wu-sha (Yangi-hissār, Yārkand) to Kāshgar in the autumn of A. D. 642.[3] At that season the more direct route up the Dershat valley and across the Kök-moinak pass is certainly also the easier. In fact I was able to assure myself, as I moved up it on September 13–14, that the track leading up to it over the Kō-bulak-dasht and through the Dershat Jilga (Fig. 66) is practicable throughout for camels and even elephants. This point is of some interest, because we know from the *Life* that Hsüan-tsang was accompanied by elephants as far as the Tangitar gorge beyond the Chichiklik,[4] and the upper portion of the Shindī valley choked with masses of big boulders must have been in the pilgrim's time as impossible for elephants as it would now be.

Plateau of Chichiklik-maidān.

I have already had occasion fully to discuss in *Serindia* the physical features of the forbiddingly barren and exposed plateau that forms the head of the Shindī valley, known as the Chichiklik-maidān, and to prove that there was situated, at an elevation of close on 15,000 feet, an ancient hospice the legend attaching to which is related by Hsüan-tsang in detail.[5] The cutting wind and driving snow which met us when we approached the Kök-moinak pass and crossed to the high open plain beyond it was an appropriate illustration of the truth of Hsüan-tsang's description: 'In this region, both during summer and winter, there fall masses of snow; the cold winds and icy storms rage. The ground, impregnated with salt, produces no crops; there are no trees and nothing but wretched herbs. Even at the time of the great heat the wind and snow continue. Scarcely have travellers entered this region when they find themselves surrounded by vapours and clouds.'[6] But there was more satisfaction when, on examining more closely the spot where on my previous passage I had located the ancient hospice of Hsüan-tsang's legend, I found distinct archaeological evidence confirming this identification.

Graves around ruined 'Gumbaz'.

The Chichiklik-maidān (Map 2. C. 4), as our survey showed, measures about three miles from north to south and over two miles across. Near the centre of it rises a low knoll bearing on its top the remains of a much-decayed 'Gumbaz' built with rough stones and respected as a sacred spot by Muhammadan wayfarers (Fig. 67). Around it there can be traced quite clearly foundations of walls built with the same rough material but far more solidly, forming an enclosure 102 feet square and correctly orientated (see the plan, Pl. 1). All over the enclosed area are scattered low grave mounds, most of them badly decayed, the ground being still used, according to the information I received on the spot, as a burial-ground for unfortunate wayfarers. For this desolate high plateau, exposed to the winds and snows, continues to claim its victims, as testified by Benedict Goës where his notes tell us: 'And then in two days more [from *Sarcil*, i. e. Sarikol] they reached the foot of the mountain called Ciecialith [i. e. Chichiklik]. It was covered deep with snow, and during the ascent many were frozen to death, and our brother himself barely escaped, for they were altogether six days in the snow here.'[7] In Chinese Turkestān the sites of supposed 'Ziārats' of saints are invariably chosen for graveyards; hence the graves found within the ruined enclosure furnish direct proof that the spot has long been held sacred.

Remains of ruined hospice.

This fact, viewed in the light of what I have been able to show elsewhere about the survival of Buddhist local worship in Muhammadan Central Asia,[8] as well as the central position occupied

[3] For the time of Hsüan-tsang's passage, cf. *Serindia*, i. p. 79.

[4] Cf. Julien, *Vie*, p. 275; regarding these elephants carrying the pilgrim's heavy baggage, including his large collection of sacred objects and manuscripts, see also *ibid.*, p. 262. This *cortège* of elephants is indirectly a proof that the economic conditions of Wakhān and Sarīkol in Hsüan-tsang's times must have been very different from what they are now; for I much doubt whether the present resources of these valleys would allow of elephants being adequately provisioned there, to say nothing of the passage of the Pāmirs. Yet we know that Hsüan-tsang—and his elephants—honoured the Sarīkol capital by a stay of twenty days!

[5] Cf. *Serindia*, i. pp. 77 sqq.; *Desert Cathay*, i. pp. 98 sq.

[6] Cf. Julien, *Mémoires*, ii. p. 215; Beal, *Si-yu-ki*, ii. p. 303.

[7] See Yule-Cordier, *Cathay*, iv. pp. 214 sq.

[8] Cf. my 'Note on Buddhist local worship in Muhammadan Central Asia', *J.R.A.S.*, 1910, pp. 839 sqq.

by the knoll, which makes the spot exceptionally well adapted for the purposes of a travellers' shelter, had seemed sufficient on the occasion of my previous visit to justify my recognizing in the ruined enclosure 'the last remains of the ancient structure to which Hsüan-tsang's record refers'. The close survey of the ground that more favourable conditions as to time and assistance now rendered possible fully confirmed this conclusion. It showed me that the south-western portion of the large enclosure was once occupied by a block of quarters, forming a rectangle whose outside measurement was 58 by 55 feet (see plan, Pl. 1). The lines of the main walls, two and a half feet thick for the most part and of the same construction as the outer enclosure, could be traced quite clearly on the ground even without excavation, though broken down almost to the surface level. The ground plan comprised two rows of five rooms each, ranged on either side of an inner courtyard measuring approximately 53 by 26½ feet. The rooms showed a uniform dimension of nine and a half feet square and were divided from each other by walls one and a half feet thick. The disposition of these rooms leaves no doubt about their having been intended for travellers' quarters and the inner court for the storage of caravan goods, &c., while the unoccupied portion of the larger enclosure outside would serve for the transport animals. The worst winds over the Chichiklik-maidān seem to blow from the north-east, and whoever planned this ancient Sarai may have left the northern and eastern sides of the outer enclosure unoccupied for the purpose of allowing the animals to seek shelter under those walls from the cutting blasts.

Antiquity of structural remains.

The fact that the grave mounds are now found uniformly scattered over the whole area, including the portion occupied by the quarters, proves the structure to have been in its present state of complete decay for a very long period. It is possible that the ancient hospice was already in ruins when seen by Hsüan-tsang; for his account, as contained in the available translations of the *Hsi-yü-chi*, gives indeed a full account of the legend about its saintly foundation as he heard it, but leaves us in doubt whether the pious traveller himself enjoyed its protection. It only remains for me to add that plentiful fragments of pottery found outside the enclosure and on the adjoining ground prove that the spot was occupied as a usual halting-place for caravans, &c. The two huts that a Chinese 'Amban' had had built some 200 yards away to the north-west, which in 1906 afforded modern proof of the suitability of the spot for a hospice, were now found completely in ruins though only erected since 1903. Their rapid disappearance serves to illustrate the severe climatic conditions and also, by contrast, the solid construction of the ancient hospice, which has left its clear traces even after the lapse of so many centuries.

Descent through Tangi-tar gorge.

From the Chichiklik eastwards I had to follow once more the route which leads down to Tar-bāshi and through the extremely confined rock gorges of Tangi-tar (Fig. 68). I have fully discussed on a previous occasion the antiquarian and quasi-personal interest attaching to this trying defile, owing to the adventures experienced there by Hsüan-tsang and nearly a thousand years later by Benedict Goës.[8] I need only add that on my descent to Tar-bāshi I noticed clear indications of ancient glaciation in large ancient moraines and in a succession of plateau-like steps, which seemed to mark the terminal points reached at different geological periods by the glacier that once filled the valley. There can be little doubt that the Chichiklik-maidān, too, owes its peculiar configuration to the former presence of a big glacier completely covering the head of the Shindī valley.

Division of parties at Toile-bulung.

On September 15th our routes divided at Toile-bulung, a Kirghiz grazing ground with patches of cultivation, where the stream from the Tangi-tar defile joins the one descending the Buramsāl valley from the north (Map 2. D. 4). Lāl Singh moved off by rapid marches eastwards in order to reach, via Yārkand and Khotan, that portion of the main K'un-lun range above Kapa and

[8] Cf. *Serindia*, i. pp. 78 sq.

Charchan along which I was anxious to have our triangulation extended as far as possible to the east. I planned our reunion at Mīrān by January 15th, just in time for the start on those desert explorations north of Lop-nōr which formed the chief task in my programme for the winter. Careful arrangements and detailed instructions were needed to assure the timely completion of the difficult surveys that were to precede it, and though fortunately I could place absolute reliance on my old travel-companion's devoted zeal and energy, the exact planning of them had absorbed much of my thought and time during our hurried joint journey to this point. My heavy baggage was dispatched to Kāshgar under the care of Afrāz-gul Khan and Naik Shamsuddīn, by the usual caravan route via Ighiz-yār, the one I had followed in 1906.[10]

Difficulties of Kara-tāsh river route.

I myself set out due north with Muḥammad Yāqūb Khān, the second surveyor, in order to reach the same goal by a new route, across the Merki pass and down the valley of the Kara-tāsh or Bēsh-kan river, which receives most of the eastern drainage of the great glacier-clad range of Muz-tāgh-atā. Owing to special difficulties this important valley, which supplies the large oasis of Yangi-hissār with most of its irrigation, had never been explored in its whole length. The narrow gorges through which the Kara-tāsh river has cut its lower course are rendered quite impassable during the spring and summer by the big floods from the melting snows and glaciers. By the time these floods subside, early in the autumn, the Merki pass is liable to become blocked by heavy snow. In the spring of 1906 I had sent Surveyor Rai Rām Singh to descend the valley; but the attempt, though made with his usual pluck, was completely baffled, and after reaching Chimghan he was obliged to turn off to the north-east and seek his way to Yangi-hissār across the Ghijak pass. Favourable conditions, mainly due to chance, promised better success on the present occasion. Kirghiz information showed that an exceptional succession of early snowfalls with low temperatures, corresponding to the unusual season we had experienced ever since leaving Yāsīn, had reduced the melting of the glacier ice earlier than in ordinary years. Thus there was hope that I should be able to pass the river gorges just while the Merki pass, though already under snow, was still practicable for laden Yaks.

Crossing of Merki pass.

Rain and then snow accompanied us all the way up the Buramsāl valley and made doubly welcome the shelter offered by the 'Ak-ois' of the last Kirghiz camp below the pass. The bad weather conditions prevailing for the last month and more, though favourable to my passage, had not allowed the ripening of the oat crop in the scattered fields that we found in the narrow valley up to about four miles above Toile-bulung. Farther up, large grass-covered moraines indicated former glaciation down to a level of about 12,000 feet. By the morning of September 16th the sky had fortunately cleared and allowed the ascent to the Merki (or Buramsāl) pass (Fig. 69), close on 15,000 feet above sea-level, to be made with load-carrying Yaks, notwithstanding the deep snow that covered the last 2,000 feet or so of the slope. The descent to the north was much steeper and rendered difficult over the greater part by huge heaped-up masses of boulders, half-hidden in the snow. We emerged from the snow only near Merki-chat, where we found a small Kirghiz camp occupying a sheltered position, some 12,180 feet above sea-level, by the stream coming from the Merki-jilga (Fig. 77).

Descent to Kara-tāsh river junction.

After halting there for the night and securing fresh Yaks, we resumed our march down the valley, which for a distance of about seventeen miles maintains a direction generally to the NNE., but with many windings. The constant crossings of the river bed, which were necessary in order to get round the foot of the precipitous rocky spurs, would have caused trouble, no doubt, earlier in the season. But now the combined volume of the several streams that unite in the valley was not large enough to fill the whole bed. The valley bottom widened, and progress for the time being

[10] See *Desert Cathay*, i. pp. 100 sqq.

became still easier after passing, some fourteen miles below Merki-chat, the point where the Kara-tāsh river flows in from the west (Fig. 72). Its volume seemed less than that of the drainage coming from Merki, and as the valley continues its direction from south to north below the junction, the Merki stream may be considered as the true head of the river. But the Kara-tāsh valley gives access to the Kara-tāsh pass, which communicates with the Little Kara-kul basin north of Muz-tāgh-atā and the Pāmīrs beyond, as appeared from our survey of 1900; and in view of the importance of this route—the only one which crosses the Muz-tāgh-atā range—the retention of the name Kara-tāsh for the whole valley and river right down to its outflow appears justified.

Defiles below Ghijak stream.

The first patch of Kirghiz cultivation is found close to the Kara-tāsh junction, at an elevation of over 10,000 feet, and there is an increase in the number of fields intermittently sown and alternating with pasture as the valley descends towards the marked bend which a conspicuous massif, snow-covered at the time, forces the river to make to the north-west. From the point where the stream coming from the Ghijak pass joins it, some three miles below the junction with the Kara-tāsh river, the valley bottom widens sufficiently for the arable ground to be almost continuous. The rest of the day's long march, done with camels from the Kirghiz camp near the Kara-tāsh junction (Fig. 74), led through a succession of defiles along the winding bed of the river. Earlier in the season these crossings from one bank to the other would not have been free from risk. As it was, we were able to complete in darkness without mishap these last few miles down to Chimghan-aghzi, where we camped.

Chimghan valley.

The valley of Chimghan, the mouth of which we had reached here, was found to descend from the south-west and to be remarkably open as far as the view up it extended, a distance of some five miles (Fig. 73). The river draining it was much larger than the Kara-tāsh river where we crossed it above its junction. The volume and colour of its water left no doubt that it is fed by glaciers of considerable size. Though it was impossible to spare time for a survey of the Chimghan valley, the mapping done in the course of my 1900 expedition makes it practically certain that these unexplored glaciers must be situated on the east flank of the great ice-clad range north of Muz-tāgh-atā, which, as the revised results of the triangulation effected in 1900 show, comprises two peaks, above the Kongur-debe and Kök-sēl glaciers, exceeding even Muz-tāgh-atā itself in height.[11] The Chimghan valley showed cultivation along its flat open bottom as far as the eye reached, and we also passed fields with modest arbours for about a mile and a half on the left bank below the river junction. Grazing grounds below the glaciers at the branching head of the valley (Bāsh-chimghan) were said to be abundant, and I saw no reason to doubt the statement crediting Chimghan with over fifty 'Oiliks' or households of more or less resident Kirghiz.

Difficulties of Kara-tāsh river gorges.

From the river junction at Chimghan-aghzi the valley resumes its trend due north, and we had not proceeded on the morning of September 18th more than a couple of miles along it before it turned into an almost continuous succession of tortuous gorges confined between towering rock walls. These defiles appeared to me a worthy Turkestān counterpart of the Hunza river route, only lacking its glaciers. They extended, as the experience of two trying days proved, for a total marching distance of twenty miles. In many places progress through them involved distinct risks, not only for the baggage. Had the river been swollen only a few feet higher it would have been wholly impossible to attempt it. Reduced as its volume then was, the very numerous crossings of the river, as it tossed between sheer walls of rock or conglomerate, could not have been effected without the help of the Kirghiz camels that we had been so fortunate as to secure at Chimghan, and none but such hardy local camels accustomed all their lives to the difficulties

[11] See Map 2. c. 3. Regarding the correct elevation, 25,146 feet, of 4/42 N peak triangulated on my first expedition, in 1900, cf. now *Memoir on Maps*, pp. 6, 64, 109; for peak 15/42 N, 25,350 feet, cf. *ibid.*, p. 121.



66. VIEW TOWARDS MUZ-TĀGH-ATĀ FROM SOUTH OF DERSHAT VALLEY.



67. RUINED ENCLOSURE ON CHICHIKLIK MAIDĀN.



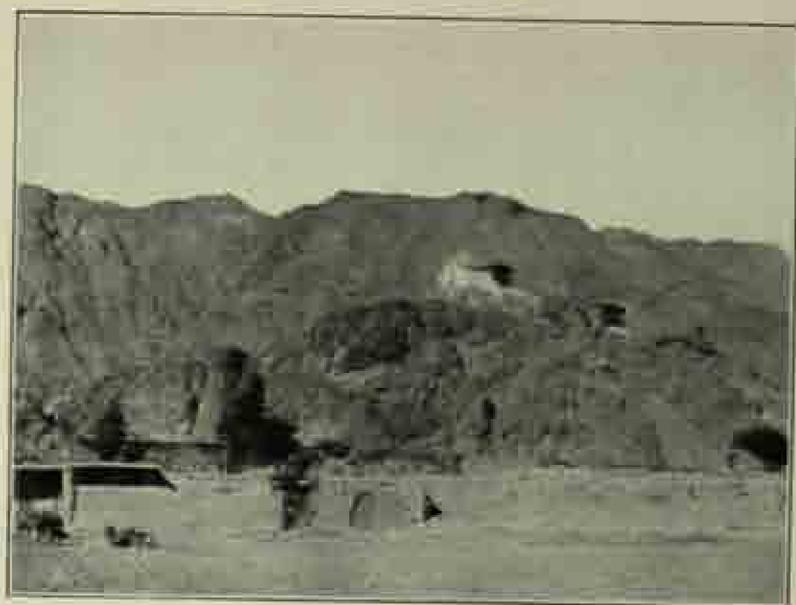
68. VIEW DOWN TANGITAR GORGE FROM TAR-BĀSHI.



69. ON MURKI OR BURAMSAL PASS, LOOKING SOUTH.



70. RUINS NEAR JANGAL-GUMBAZ, ABOVE TASH-KURGHĀN RIVER.



71. RIDGE WITH TOMBS OF IṢHĀNS, TOGHLĀN-SHAHR.



72. VIEW UP MERKI VALLEY FROM KOCHKAR-OLTURDI.



73. VIEW UP CHIMGHAN VALLEY FROM CHIMGHAN-AYAKI.



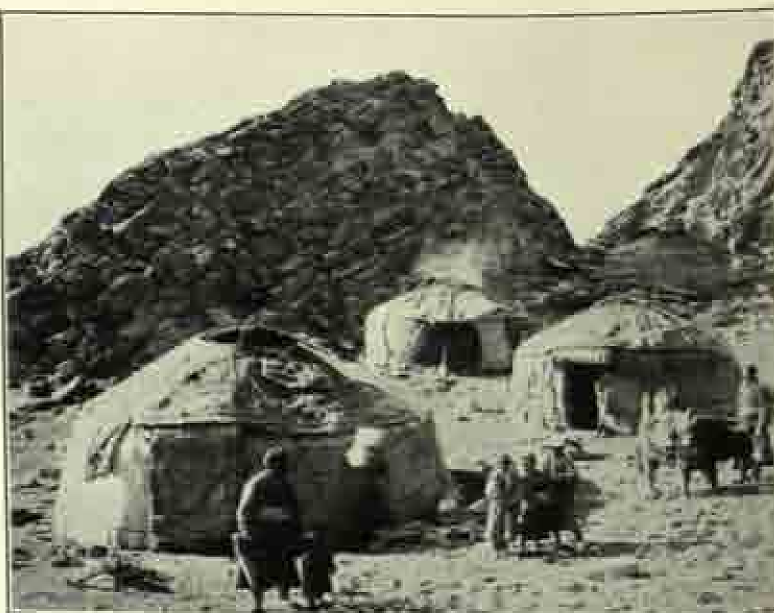
74. CHANGING TRANSPORT AT KARA-TĀSH-AGHZI.



75. KARA-TĀSH RIVER GORGE BELOW TEREK-KICHIK.



76. WAKHĪ SETTLERS IN CHAPURSAN, HUNZA.



77. KIRGHIZ CAMP AT MERKI-CHAT, BELOW BURAMSĀL PASS.

of the ground could possibly have coped with the narrow boulder-strewn tracks, in places veritable 'Rafiks', leading along the foot of these precipices.

Track over galleries and rocky ledges.

Fig. 54 shows the first of these 'Rafiks' encountered at Bakuchak, about six miles below Chimghan-aghzi, and here practicable for men on foot only. The construction of these galleries with rough tree trunks and brushwood shows a skill worthy of such cragsmen as those of Hunza or Shighnān, and was scarcely to be expected among Kirghiz, averse as they are by the inherited instinct of true nomads to the use of their legs. Yet it was at this point, so unlike the ground familiar to the traveller in the Tārīm basin, that I was first greeted by that sure sign of the vicinity of the great desert plains, the dust haze appearing above the narrow gap of the gorge. After repeatedly crossing the river, which the few riding ponies had great difficulty in fording, we came to a place some three miles farther down where projecting rock coulisses seemed completely to close the passage. Here, at Ara-sünde, the camels had to be unloaded before they could be taken across the 'Rafiks' and past the slippery boulders, which elsewhere made the track along the foot of the cliffs even worse (Fig. 55). The narrow steep-edged terraces of the right bank for a mile or two after this gave hope of less precarious progress. But they brought us to an impassable precipice, and the crossing to the left bank proved too dangerous even for the brave camels. We had accordingly to retrace our steps past the outfall of the Kara-tumshuk-jilga before the racing torrent of the river, here about fifty yards wide and three feet and more in depth, could be forded. After crossing steep talus fans and climbing rocky slopes, we were glad at last to reach by dusk a point where a small patch of level ground, with a grove of wild poplars, allowed us to camp by the river.

Defiles below Kaying-jilga.

Our march on September 19th began with difficulties quite as great. Progress for the camels was only possible by constantly crossing and recrossing the river. The 'Rafiks' and rock ledges by which we descended on the left bank, after a mile or so of painfully slow progress, became impracticable even for laden ponies, and it became necessary to let them swim across held by ropes attached to the camels. For us men on foot, the short stretch from opposite the mouth of the Pitlik-jilga to Kaying-aghzi, scarcely more than three-quarters of a mile in direct distance, meant a trying detour of over two hours: after scrambling along precipitous cliffs of slaty rock with Rafiks as bad as those of Hunza, we had to climb in zigzags over very steep slopes of treacherous shale to a height of some 800 feet above the river and to descend again to the latter over ground equally steep. Beyond the mouth of the Kaying-jilga, which holds a considerable stream, the river bed somewhat widens, and for about a mile and a half progress by the left bank seemed by comparison easy. Then below the side valley of Terek-kīchik, through which large grazing grounds and a pass towards Yangi-hissār can be reached, bold spurs descend again in succession. Their precipitous faces, rising at one point with almost vertical rock walls to a height probably close on 3,000 feet, leave no track except in the river bed. The latter is, of course, quite impassable during the spring and summer floods, and even at this late season the half a dozen crossings were difficult for ponies. It was thus a real relief when the last rock gate of the river, known as Tügine-tar (Fig. 75), was passed, and we emerged from these gloomy defiles into the now rapidly widening valley close to where the Kara-bēl-jilga joins it.

Passage through eroded outer hills.

Here the character of the valley undergoes a complete change, with a corresponding effect on the traveller's rate of progress. Whereas the seven and a half miles' march from our camp at Kara-tumshuk had cost us as many hours of toil, with considerable risk to the baggage, the remaining eleven miles to our night's camp at the cultivated area of Sāmān were easily covered in two hours on the ponies brought up from Khān-terek to meet us. The track led throughout over broad riverine plateaux or wide alluvial fans, cultivated in parts by Kirghiz. Instead of

frowning rock scarps and bold spurs, much-eroded side valleys stretched away on either side. The hill slopes, mainly composed of sandstone with layers streaked red and grey, showed the same excessive erosion that I had observed on my passage in 1900 down the Gez-darra and across the Tokuz-dawān.[12] Once again the impression made on me was as if the erosive forces that are ever at work in this arid region had laid bare the very skeleton of the outer hill ranges. As I passed the broad alluvial fan where a lively stream from the Yapchan-jilga waters the rich cultivation of Kurghān, my attention was attracted by the deep red loam of the soil, evidently the product of decomposed sandstone, and by the huge blocks of conglomerate scattered over it like erratic boulders. Then I noticed masses of the same conglomerate high up, overlying the red sandstone ridges like a mantle. This stratum, many hundreds of feet thick, was uniformly visible on both sides of the valley.

Debouchure of Kara-tāsh river.

Sāmān with its solitary dwelling among sandy fields was the last cultivated area in the valley. Former experience at the debouchures of other rivers in the Tārīm basin had prepared me for the utter desolation over which we proceeded for twenty miles on September 20th before reaching the edge of the cultivated plain. Fantastically eroded sandstone ridges, absolutely bare, continued to flank the wide barren valley for about four miles. There, at the last small defile known as Tüshküch, the river was about forty yards wide and carried a volume of water estimated by me at about 1,400 cubic feet per second. During the summer floods the water was said to be about six feet deeper, which would imply a volume at least three or four times greater. Beyond this point the hills die away in flat-topped plateaux of conglomerate. These, where their foot is washed by the river, break off in almost perpendicular cliffs. Finally, the valley assumes the character of a wide stony 'Dasht', and across this the route took us for over six miles before the river, which winds away to the NE., came in sight again opposite the low ridge of Aimodun.

Shrine of Pakhlān-khōjam.

The deserted watch-station of Chong-karaul marks the point where two main canals of Yangi-hissār, known as Töwis and Shāh-niāz, have their heads. About two miles farther on and to the north of that ridge, the river passes close to the foot of the conglomerate plateau that skirts it on the left side all the way from Chong-tokai. On a knoll near the very end of the plateau stands the well-known shrine of Pakhlān-khōjam, a famous Muhammadan saint. His tomb is a much-frequented pilgrimage place for the people of the Yangi-hissār district, as he is supposed specially to protect the water-supply of the Kara-tāsh river, on which the irrigation of their lands depends. His Ziārat thus plays here a part exactly corresponding to that of the Kohmārī shrine above the Kara-kāsh river, which has long since been shown to inherit the site and function of the 'Gośṛiṅga Hill' of Buddhist Khotan.[13] It was therefore no surprise to me to find that the Lawar-üstang, the largest of the canals irrigating the lands of Yangi-hissār and that which brings water to the town itself, takes off from the Kara-tāsh river[14] just opposite Pakhlān-khōjam's tomb. The latter is marked by two 'Gumbaz' and a large walled enclosure. Of older remains near it I could learn nothing. But there can be no doubt that the worship of the site, a true *su-bāshi*, goes back to early times.

Cultivation of Yangi-hissār.

Fording for the last time the river, which here turns off to the north, I soon reached the first fields of Āltunluk, a small flourishing village on the edge of the open plain, and felt myself once more on familiar ground. Kichik Bēg, who had been sent from the Yangi-hissār Ya-mên to receive me, was an old acquaintance from Khotan. He had much to tell me of the detrimental effect on the economic development of the district resulting from the disturbances and political

[12] Cf. *Ruins of Khotan*, pp. 112 sqq.

[13] Cf. *Ancient Khotan*, i. pp. 189 sq.

[14] The river is better known to the people of Yangi-hissār under the name of *Bēsh-kan*. I regret not to have inquired at the time into the origin or meaning of this designation.

uncertainty which followed the Chinese revolution. I was indeed prepared by my previous observations to learn that, in spite of years of plentiful water and abundant harvests, little or no new land had been opened in this part since 1908. Fortunately no signs of such a set-back interfered with the pleasant impressions that I gathered in the course of my forty miles' ride on September 21st to Kāshgar. The route followed, leading in an almost straight line to the north, took me over ground that I had not previously visited and gave an opportunity for some useful mapping by the surveyor, who followed at short stages behind. Beyond the village lands of Āltunluk and Ārtush-bāgh we passed through belts of unreclaimed steppe interspersed with poor cultivation, until, about ten miles farther, we came to the rich lands of the Konasak tract; these extend to the south of the Kūsan-daryā (Map No. 5. A. 2), as the terminal flood-bed of the Kara-tāsh river is here named.

Close to Akhtur-bāzār, the large market centre of this tract, I was able to examine *en route* a ruined town site to which my attention had first been drawn by a reference in the Report of the Forsyth Mission, 1873–4.[13] The 'town of Ak-bāsh Khān', as it is locally called, proved a walled enclosure of roughly quadrangular shape and manifestly of a comparatively late date. Tradition ascribes its construction to Ak-bāsh, a chief of Kirghiz descent, who had founded a settlement here at a period vaguely described as preceding the 'old Khitai' rule, i. e. the Chinese conquest of the middle of the eighteenth century. The general appearance of the circumvallation supports its attribution to late Muhammadan times. Of the irregularly aligned wall faces those to the east, south, and west measured about 129, 144 and 164 yards, respectively. The north face, adjoining the right bank of the Kūsan-daryā, follows an undulating line. Gates could be traced near the centre of all but this front. The lower portion of the enceinte is formed by a rampart of stamped clay rising to an average height of about twenty feet. Above this there is a wall built of sun-dried bricks, measuring 13″ × 13″ × 2″, which in the parts best preserved still stands to a height of about ten feet. At the north-eastern corner it was about ten feet wide at the top, and on it a fragment of the parapet, about 3½ feet thick, survived to a height of close on 7 feet. A cutting made by men digging for manuring earth at the south-western corner of the enclosure showed that the rampart measured there about 31 feet across at a height of about 6 feet from the ground level. No remains of structures were traceable within the walls, nor did I hear of coins or other small objects of a datable character having been found there. Hence the true origin of this circumvallation remains uncertain for the present.

Ruined walls at Akhtur-bāzār.

From Akhtur-bāzār I proceeded across the rich cultivated area of Pārach. A canal passing through it carries water to the Yapchan tract, on the Kāshgar–Yangi-hissār road, and marks the extreme northern limit of irrigation from the Kara-tāsh river. By tracks leading due north I traversed wide belts of fertile but unoccupied land, through which the branching beds of the Yamān-yār or Gez river flow eastwards. Judging from the big volume of water carried down by these beds during spring and summer, there seems opportunity here for much reclamation. Finally I reached the wide area of unbroken cultivation which receives its water from the river-system of Kāshgar, and on passing the Telwichuk bed near Pakhtakla (Map No. 2. D. 2) found myself back on ground that I remembered well from my first stay at Kāshgar in 1900. Before nightfall I had the satisfaction of arriving at the British Consulate General, and enjoying once more the kindest welcome under the ever hospitable roof of my old friend Sir George Macartney.

Arrival at Kāshgar.

[13] Cf. Forsyth, *Yarkand Mission Report*, p. 38.

CHAPTER III

FROM KĀSHGAR TO THE KHOTAN RIVER

Section I.—ALONG THE OUTERMOST T'IEN-SHAN

Halt at Kāshgar.

The great strain and fatigues that nearly two months' constant travel over exceptionally difficult ground had entailed would alone have rendered some rest at Kāshgar imperative for my party. But a stay there was rendered even more necessary by the manifold preparations, practical as well as quasi-diplomatic, for the tasks awaiting me on Chinese ground. The facilities offered by the hospitality of Chīnī-bāgh, now much enlarged and rebuilt in keeping with its new dignity as H.B.M.'s Consulate General, made it possible to combine these labours with physical rest for us all. But even thus the two busy weeks spent in Kāshgar would certainly not have sufficed for all the heavy work which the organization of my caravan and other arrangements involved, had not the ever helpful care and unfailing influence and provision of Sir George Macartney aided my efforts in every direction.

Preparations for desert explorations.

The rapidity of my movements since I left Kashmīr had been directly prompted by the wish to secure a timely start for the explorations of the autumn and winter. I knew well from previous experience the importance of securing suitable transport at the outset if this purpose and the success of the operations in the desert were to be secured. I therefore felt special satisfaction when, as a result of arrangements made months before, twelve fine camels arrived from far-off Keriya, bred for desert work. They had been selected by Hassan Ākhūn in person, my experienced camel factotum,[1] who was now about to embark on the third of our long expeditions into the 'sea of sand'. Other faithful old Turkī followers also readily consented to take their place once more in my caravan, as pony-men, &c.

Chinese secretary engaged.

It was equally necessary to provide myself with a competent Chinese secretary. I had been delighted to see again at Kāshgar my devoted Chinese assistant and friend, Chiang Ssŭ-yeh, whose efficient aid had constantly proved so valuable on my second journey.[2] He had well deserved the reward of being appointed in 1908 Chinese Munshi at the Consulate General. Notwithstanding that he held this comfortable berth, he would, I believe, have gladly rejoined me for another long and trying journey, had not his increasing years and a serious aural affection warned me against accepting the sacrifice and risks that such a step would have involved for him. Li Ssŭ-yeh, a young man, weakly and shrivelled up, whom Chiang provided for the post of my camp *literatus*, came like himself from Hu-nan, but turned out to be a poor substitute, as I had apprehended from the first. But there was no other choice then at Kāshgar. Wholly absorbed in treating his ailments, real and imaginary, with every quack medicine he could lay hold of, and taciturn and inert by nature, Li was useless for the many scholarly as well as practical labours in which Chiang had always been ready to engage with cheery energy and keen interest. We did whatever was possible to spare poor Li Ssŭ-yeh all needless fatigue and exposure while travelling, and ordinarily he was

[1] For Hassan Ākhūn's preceding record, cf. *Ruins of Khotan*, pp. 124, 343, 382 sq.; *Desert Cathay*, i. p. 112, &c. (see Index, ii. p. 502, *s. v.*).

[2] Cf. *Desert Cathay*, i. pp. 115 sqq.; *Serindia*, iii. p. 1518, Index, *s. v.*

left to follow the *ta-lo* (' big road '), dear to Chinese in general, along with the heavy baggage. Anyhow he was brought back safely to Kāshgar some twenty months later, managed meanwhile to indite my Chinese epistles, and justified Chiang's belief in his probity by never playing me false in my dealings with Chinese officials.

Disturbed conditions in Hsin-chiang.

For this negative virtue I had special reason to feel grateful. Sir George Macartney's shrewd warnings had prepared me to find many aspects of Chinese officialdom greatly changed, and not for the better, as a result of the influence exerted by the revolution of 1911 even upon this distant province. The peace of the New Dominion had in 1912 been seriously disturbed by a series of assassinations of Mandarins, including the Tao-t'ais of Kāshgar and Ak-su, and by petty outbreaks among the Chinese garrisons and their attendant rabble fomented by unscrupulous office-seekers masquerading as ' revolutionaries ' and ' reformers '. Though confined entirely to the numerically weak Chinese element and viewed at first by the mass of the people, peaceful Turkī Muhammadans, with their characteristic unconcern, these disturbances before long spread a feeling of insecurity throughout the province. It was largely due to the wise counsels and moderating influence of Sir George Macartney, who for many years past had enjoyed wide and richly deserved respect both among the people and the Chinese officials, their masters, that complete anarchy did not ensue.

Change in officials' attitude.

The situation had become more settled before my return to Kāshgar under the influence of a somewhat stronger régime at head-quarters, and the local administrators were now less subject to the exactions of blackmailing Chinese soldiers and so-called ' revolutionaries ', in fact gamblers and adventurers.[3] But it was difficult not to realize that the ' revolutionary ' movement in Hsin-chiang had in various respects adversely affected the general type of officials in power. The new elements raised to office had manifestly discarded most of the good qualities of the old local Mandarin class, including regard for scholarly aims and labours; but the beneficial effect hoped for from ' Western learning ' and pretended republican institutions was still conspicuously absent. While clinging faithfully to the old corrupt administrative system which has made Hsin-chiang a kind of Eldorado for needy Chinese officials, these new masters, eager to display their sympathy with the ' Rights-recovery-policy ' of Young China, were not likely to ignore such chances of obstruction to Western enterprise as were offered by recent orders from Peking about surveying and archaeological operations. Altogether there was only too much justification for Sir George Macartney's warning that I could not reckon upon always finding the same favourable disposition at Chinese Ya-mêns that had greatly facilitated my explorations on previous journeys.

Departure from Kāshgar.

As soon as my preparations were completed I set out, on October 9th, from the hospitable shelter of the Consulate General for the winter's work in the desert. Its chief goal was the region around the ancient dried-up Lop Sea, in the extreme east of the Tārim basin; I was separated from it by the whole length of the Taklamakān, that great sea of drift-sand over 600 miles in length. In order to assure adequate time for the explorations contemplated in that waterless region, it was essential to reach them while the cold of the winter permitted of the easy transport of water in the shape of ice. This consideration had from the first played a decisive part in my plans.

Planned route along foot of T'ien-shan.

For a variety of reasons I was anxious to revisit Khotan, and once there I was bound to proceed by the only practicable route, which skirts the southern edge of the Taklamakān. Most of the ground to be traversed was already familiar to me from my previous expeditions, and I was therefore all the more eager to avail myself of any new route from Kāshgar to Khotan that could be traversed within the time available. With this object in view I had decided to move first due east

[3] Commonly known in Chinese Turkestān as *kamarbāz* and lately also as *kara-sepech* ' black hats ' from the (Japan-made) European head-gear that the leaders of these gentry affected as a visible mark of their advanced Western notions.

to Marāl-bāshi and thence to strike across the desert to the Khotan river by the nearest route which might prove practicable. As far as Marāl-bāshi I proposed to follow the foot of the barren hill chain which here forms the southernmost rampart of the T'ien-shan. Two reasons combined to make me choose this route. The first was that this range almost throughout its length from the hills north of Ārtush to south of the Kelpin oasis (Maps Nos. 5. A–D. 1; 8. A. 1; 7. A, B. 4) had as yet remained practically unsurveyed, as appears from the portion of Dr. Hassenstein's map of the Tārīm basin that includes it.[4] The other reason was archaeological and had its origin in reports first heard at Marāl-bāshi in 1908 and again later on the Kāshgar side.[5] These seemed to indicate that an old route, now but vaguely remembered in local lore, had during some earlier period skirted the foot of that chain and been used for traffic instead of the present Chinese 'high road', or more correctly cart track, leading much farther south along the actual course of the Kāshgar river.

March to Āstin-Ārtush.

Having previously dispatched all baggage that was not immediately needed by trader's caravan to Khotan, I took the precaution, as I expected water to be scarce, of reducing my party still further by sending Surveyor Muḥammad Yāqūb along the high road to await me at Marāl-bāshi. Accompanied by Afrāz-gul Khān and Naik Shamsuddīn I set out myself to the north-east. The first day's short march brought us through fertile ground, which I had already seen in 1900, to Sedir in the canton of Bēsh-karīm. Passing again the well-known shrine of Bū-Mairyam and sighting beyond Eski the Stūpa ruin of Maurī-tim which had been surveyed in the same year,[6] we then made our way to the large oasis of Āstin-Ārtush (Map 5. A. 1). Its famous Ziārat of Sultān Boghra Khān has been visited and described by the Forsyth Mission.[7] We passed it as darkness fell, on our way to our night's quarters at a large farm at Wakwak, not far from the eastern end of the cultivated zone of Ārtush.

Along terminal course of Ārtush river.

On October 11th a long march brought us to Kalta-yailak, a narrow and far-stretching belt of hamlets, which forms the terminal oasis of the river of Ārtush. Almost the whole of our route led over desert ground near the foot of the outermost hill range. The big bends in which the river winds here eastwards indicate the almost level nature of this ground. There is no marked glacis along the foot of this range, and as a consequence former river-beds and marsh-beds still liable to inundation from the south approach close to it. These were subsequently found to be characteristic features of the whole of the ground traversed by us on the way to Marāl-bāshi. It presents a striking contrast with the wide glacis slopes of piedmont gravel that everywhere edge the foot of the K'un-lun range on the opposite side of the Tārīm basin. This contrast is clearly due to an essential difference in the morphology of the two mighty ranges which form the north and south rims of that basin, and therefore may here receive passing mention. The surveys carried out by Lāl Singh in 1908 and 1915 among the outer hill chains of that portion of the T'ien-shan which lies between the longitudes of Kelpin (Map No. 7. B. 3) and Kāshgar may be of use to others more competent than myself to follow up the point.

Site at *Duldul-ökür.*

I had previously received information about some old remains at the very foot of the outermost hills, and consequently left the track leading to Kalta-yailak beyond the river crossing of Kichik-langar.[8] After passing over a desolate plain covered with scanty scrub and much salt

[4] See 'Karte des Tarim-Beckens' in Hedin, *Reisen in Z.-A.*, Petermann's Mitteilungen, Ergänzungsheft No. 131.

[5] Cf. *Serindia*, iii. p. 1307, 1310.

[6] Cf. *Ancient Khotan*, i. pp. 79 sq.

[7] See *Yarkand Mission Report*, p. 17; Figs. 41, 42.

[8] The bed, where we passed it again after marching about 7 miles beyond Kichik-langar, was about 30 feet wide and held water to a depth of close on 2 feet; the measurement taken indicated a volume of not less than 80 cubic feet per second. During the period of the summer floods the river was said to fill the bed to a height of some 7 feet more on the average. These indications suggest the possibility of far more extensive cultivation than is to be seen at Kalta-yailak at present.

efflorescence, we crossed the river again and also a dry bed beyond it and reached a small patch of recently opened cultivation known as Băchang-aghzi. It receives irrigation from a small stream, which flows out of an absolutely barren hill chain about a mile farther north. The extreme end of the steep conglomerate spur that flanks its outlet on the west, carries remains which undoubtedly go back to Buddhist times. The site is known as *Duldul-ökür*.[8a] On the narrow crest of a small precipitous ridge, rising to a height of about a hundred feet immediately above the mouth of the defile, there survives the base of a ruined Stūpa, measuring about fourteen feet square and standing to a height of over seven feet. It is built of sun-dried bricks, measuring 15 × 12 × 3 inches. Owing to the extreme steepness of the cliffs on all sides, access to the top of the ridge is very difficult, and debris from whatever structure may have occupied it has long since been washed down. But fragments of hard coloured stucco could be picked up immediately below the western face of the Stūpa base, and an interesting relic was recovered among the rubble at the foot of a small gully adjoining this ridge on the north. It is the fragment, about eight inches high, of a wooden vesica and halo finely carved in relievo, which undoubtedly once served as the backing of a Buddhist image.[9] The workmanship seems to point to T'ang times.

Climbing up this steep gully, I noticed thin layers of ancient refuse similar to those found on the slopes below the fort of Mazār-tāgh,[10] and at an elevation of about fifty feet above the bottom of the gorge I came upon the remains of a massive wall about four feet thick and built of sun-dried bricks. It was traceable on either side of the gorge and evidently intended to close access to it. The top of a narrow ridge, which I reached with difficulty, retained indications of ancient occupation in the shape of a plentiful deposit of refuse. Neither time nor labour was available for systematic clearing, and superficial scraping revealed only reed straw, remnants of fuel, portions of corded hemp shoes, &c. A low mound on a small northern projection of the ridge may perhaps mark the base of a completely ruined Stūpa, judging from the fragment of a wooden beam with mouldings found embedded in the brick debris. I need only mention further a curious semicircular brick wall decayed almost to the ground, which encloses a space about 36 feet long from north to south and 26 feet across, immediately below an almost vertical cliff on the west side of the outlet. Its purpose remains obscure; but it may well account by its shape for the local designation *Duldul-ökür*, derived from Persian *Duldul-ākhur*, 'the manger of Duldul', this being the name of Rustam's horse famous in popular legend.[11] However this may be, there can be little doubt that these scanty ruins mark the position of a small Buddhist sanctuary established at a *su-bāshi*. The defile from which the stream descends was said to be occasionally followed as a branch of the route which connects Kāshgar with Uch-Turfān, and is known as Mutul-aghzi.

Remains of former occupation.

Skirting the foot of the hills eastwards for about four and a half miles farther, over bare gravel and salt-encrusted alluvium, we reached the second site known as *Kalmak-shahri*. It is marked by the remains of a large circumvallation in stamped clay, originally quadrangular in shape but with dimensions no longer determinable; for only badly eroded portions of the west and north faces could be traced, the rest having apparently been washed away by floods from the Mutul-aghzi defile. Small as the stream of the latter is now, rain in the mountains occasionally causes

Site of *Kalmak-shahri*.

[8a] For the name, see below.

[9] **Duldul-okur. 01. Fr. of carved wooden vesica;** elliptical when complete, with pointed extension at top. R. portion only preserved; with part of top. Border of vesica rayed with simple V-cuts at right angles to edge; and same border carried up to point. Field of vesica orn. with long V-channelled petals radiating from centre, but interrupted at upper end by part of circular halo with plain border and similar radiating petals within. Good work; good condition. H. $7\frac{7}{8}$", gr. width 2", thickness $\frac{5}{16}$". Pl. IX.

[10] Cf. *Serindia*, iii. p. 1287.

[11] The same local name derived from the epic legend of Īrān is also met with elsewhere, in widely distant places, e.g. as the designation of temple ruins at the Kum-tura site of Kuchā and of an ancient circumvallation, south of Hauzdār in Sīstān.

it to inundate the surrounding land; we saw evidence of this as we rode over the scrub-covered plain to the north edge of the cultivated zone of Kalta-yailak. This, wherever I saw it, presented a neglected and straggling appearance. But this could scarcely be due to inadequacy of water, for one of its main canals where we crossed it on our way to the village of Kuduk still carried at this late season a volume of over forty cubic feet per second.

Mound of *Tim*.

On the following morning I proceeded from Kuduk to the ruined mound known as *Tim*, which rises above the scrub-covered salty plain about two and a half miles north-west of the village. It proved to be a shapeless mound measuring roughly 67 by 84 feet on the ground level and about 26 feet across its top, which rises to a height of about 16 feet. It is composed of loose earth intermingled with layers of small brushwood, and it recalled to me the mounds of Tūge-dong near Chira examined in 1901.[12] Like these it may well mark an old burial-place, but the salty nature of the soil, due to occasional floods from the Mutul-aghzi defile, leaves little hope of antiquarian finds. Proceeding thence to the north-east we crossed the bare clay steppe formed by the alluvial fan of the barren valley leading to Uch-turfān; the usual route to that place follows the valley past the watch-station of Sughun-karaul (Map 5. B. 1). The formation of dunes, in the shape of isolated 'Barkhans', over the eastern part of this 'Dasht', showed the growing aridity of the ground. At the farm of Ak-maidān we reached the extreme point irrigated by the Ārtush drainage; all the straggling area of cultivation, of which we continued to skirt the northern edge for another seventeen miles as we travelled eastward, was said to receive its water from canals fed by the Kāshgar river. We did not approach the end of it until long after nightfall, when we camped at one of the last farms of Bēsh-tam.

Start eastwards from Bēsh-tam.

From Bēsh-tam our desert journey in search of the 'old road' to Marāl-bāshi commenced. I had verified on our preceding marches that some vague knowledge of its existence survived in local tradition, and also that this pointed to its having followed the foot of the rugged outermost hill chain, which in the clear atmosphere of the autumn could be seen stretching far away due east with a wall-like appearance. The ground to be traversed by us for a distance of over a hundred miles was wholly unsurveyed, and, in view of the probable difficulty in finding water and of the necessity of husbanding time, we were very fortunate in securing a capable guide in the person of Barat, a villager from Ördeklik on the high road. He had been for years in the habit of prospecting for minerals in the barren hills northward, and was for the time being employed by Tāshe Ākhūn, an enterprising landowner of Āstin-Ārtush and our host at Wakwak, in the exploitation of a small copper mine at Tonguz-aghzi, north of Bēsh-tam. He had only once made his way to Marāl-bāshi by the route to be surveyed, but proved very intelligent and possessed of remarkable sense of locality.

From Bēsh-tam to Bogach-köl.

For a mile or so beyond the limit of actual cultivation the ground at Bēsh-tam continued fertile, and as the last summer flood had been ample there were patches of it newly broken up and sown. But our farther march of October 13th along the foot of the range lay almost wholly over an utterly barren clay steppe, showing only dead tamarisk scrub on cones or else salt-incrustation. At a point known as Kara-tāsh, Barat showed us a large slag-covered mound where at one time copper ore from a mine in the hills had been smelted. No work had been carried on here within living recollection, while the extent of the mound, some 50 yards across and 8–10 feet high, pointed to prolonged occupation. The fragments of partly glazed pottery that were brought to light, together with rags of fabrics and similar objects, in a thick refuse deposit adjoining the mound on the south, looked to me decidedly old.[13] But our search for coins or other datable remains

[12] Cf. *Ancient Khotan*, i. pp. 465 sq.

[13] **Kara-tash. 01. Four frs. of pottery,** glazed; two blue, one dark brown, one red-brown, and one small fr. of terra-cotta. Gr. M. $\frac{11}{16}$".

Kara-tash. 02. Fr. of yellow felt. Gr. M. $2\frac{3}{8}$".

Kara-tash. 03. Fr. of buff cotton fabric; plain weave. Discoloured and perished. Gr. M. 3".

proved fruitless. Living vegetation was not reached again until the end of the march, when we approached the north fringe of a large marshy area with a lake called Bogach-köl. We were told that flood water from the Kāshgar river had made its way into this regularly for the last four years. The luxuriant reed-beds around it afforded plentiful grazing.

Old beds from Kāshgar river.

The following day's march led between the foot of the steep and steadily rising hill range and the belt of vegetation to the south. Cones with living tamarisks were frequent on this ground and occasional rows of dead Toghraks or wild poplars marked the proximity of running water at some earlier period. After about eight miles we passed a small promontory jutting out from the range, and near its end came to an old river-bed, clearly marked and lined with dead Toghraks, winding away to the south-east. Living tamarisk-cones which had grown up in the bed to a height of six feet or so indicated that it had not been reached by water for a number of centuries. But Barat knew that another old bed farther south had some years before received water from an inundation of the Kāshgar river, and to the last lagoon left behind in this bed he brought us. Here we camped in order to give our animals the chance of a last drink and to fill our own water tanks. Though the old bed farther south had completely dried up again, the water was still fairly fresh. As a characteristic instance of the fashion in which occasionally inundated ground in this uppermost portion of the Kāshgar river delta is utilized for spasmodic cultivation, I may mention that two small patches of open ground a couple of miles from that last lagoon had been brought under the plough as *terelghas* for a year or two, by settlers from Ördeklik on the distant high road. I had occasion to observe similar cases on the lower Tārīm and near the termination of the rivers of Kuchā.[14]

March along barren range of foot-hills.

Our march on October 15th was longer and offered opportunities for several observations of interest. Its line led for the first two miles or so between living tamarisk-cones, and then across a succession of alluvial fans of bare clay flanked northward by much-eroded foot-hills and on the south by a wide belt of salt-encrusted ground with living tamarisks. All day we had a full view of the range both near and far; from this point it takes a slightly more northerly trend. Quite uniform in its utter barrenness, it yet displayed striking differences of form and colouring. Beyond the foot-hills, deeply fissured and scarred by erosion, was to be seen a massive wall of red sandstone with a face that appeared in places almost perpendicular. Its height, as clinometrical readings indicated, rises to points above 8,000 feet. Though the visible outfalls of the drainage from the range suggested extremely narrow gorges, yet the wide fans before them bore witness to the big volume of water that they must pour forth on the rare occasions of heavy rainfall. Within a mile or two from the foot of the outer hills, all the alluvial fans seemed to merge in an absolutely level plain of hard clay with salt-encrusted stretches. The whole landscape curiously suggested a coastline from which a shallow sea had retreated, leaving it to be denuded by all the erosive effects of an extremely arid climate. I was struck, throughout its length, by the absence of a continuous sloping glacis, the usual 'Sai' of piedmont gravel, and tempted to seek its explanation in the levelling effect of the alluvium deposited through long ages from the wandering beds of the Kāshgar river.

Evidence of desiccation.

In skirting the succession of fans to which we first came about eight miles from camp, I noticed again and again unmistakable evidence of more moisture in the past; it was afforded by dead Toghraks, all prostrate and of very ancient appearance, forming rows in a north to south direction. In view of the fact often noted before in the course of my desert travels that wild poplars always grow in lines along running watercourses, or parallel to them where the flow of subsoil water keeps them alive, these lines of ancient Toghraks, found usually by the west and east edges of

[14] Cf. *Serindia*, iii. pp. 1231, 1233; also below, Chap. xxiii. sec. iii.

fans that are now absolutely bare, were susceptible of only one explanation and that obvious enough. They had grown up at a period of more abundant rainfall, when water descended over these fans with sufficient regularity to permit the trees to grow up and live to the great age indicated by the size of the fallen trunks. There were other observations which pointed to the 'desiccation' of this hill range within historical times. At two points Barat pointed out in the distance the position of copper-mining pits (Map No. 5. c. 1) which had been worked in old times and which were by no means exhausted. But a recent attempt to reopen them had proved futile, as the water formerly carried by the gorge near which the more westerly of the two is situated had dried up, and a 'Kak' or natural cistern supposed to have existed near the other could not be located. We subsequently came upon abundant slag from the copper-smelting operations that had once been carried on along the old river-bed presently to be mentioned.

Line of old route.

On crossing a fan farther east we came upon a line of decayed cairns running straight to the north-east. This, as the map will show, is exactly the direction that an old route running along the foot of the range towards Tumshuk and beyond would have followed as the shortest line. Wishing to visit the reported ancient site of Khitai-shahri, we had to keep first due east and then after fifteen miles to take a turn to the south-east. This brought us presently to the meandering course of a dry river-bed lined by broad belts of Toghraks, all dead, but most of them still upright. There could be no doubt that it was a branch of the Kāshgar river, which had at one time approached the foot of the hills at this spot and receded again, probably centuries ago. Leaving this old bed to the north but keeping within the riverine belt of dead forest, we were at last brought by Barat to the site known as *Khitai-shahri*.

Site of *Khitai-shahri*.

The site is marked by a badly decayed wall of stamped clay traceable for about 300 yards, but only in short sections, along a NE.–SW. line. At both ends of this line the wall seemed to have turned at right angles, but could be traced only for a very short distance among close-set tamarisk-cones and dead Toghraks. The ground near by is thickly covered with *shōr*, and this obviously accounts for the far-advanced decay of the enclosing wall. It stands nowhere to a height of more than four and a half feet and its present thickness is only two feet or so. At about 120 yards to the ESE. of the northern corner a small mound of salt-permeated earth rises to about eight feet from the ground, with a diameter of about 46 feet at the base. A cutting had been made across the top, but showed neither brickwork nor distinct layers. Pieces of slag and broken pieces of well-burnt pottery, apparently old, could be picked up both inside and outside the extant segment of wall; its ornamentation with comb-drawn pendent loops and twisted fillets looked distinctly ancient.

Salt bog fed by Kāshgar river.

Next morning we turned once more to the north-east, and after recrossing the old river-bed and proceeding a little more than a mile came upon plentiful living tamarisk and other scrub. Not far beyond the dry river-bed I noticed a low embankment suggestive of an old canal. Curiously enough the amount of living vegetation, including abundant reed-beds, increased as we approached the foot of the hill chain. Its explanation was furnished by a far-stretching belt of salt bog, which we perceived winding through the reed-covered area to the south. This low-lying ground is evidently still reached by occasional floods from the Kāshgar river-system. The obstacles that such inundations often create during the summer months in the area crossed by the present high road between Faizābād and Marāl-bāshi were brought home to me by the difficulty experienced in bringing our camel convoy, which had strayed to the south of the salt marsh, safely back to the track followed by Barat. It cost the animals a long and trying detour and us some anxiety and weary waiting. We spent most of the time in trying to locate a well that Barat remembered to have found years before at a point of the reed-covered depression stretching north of that marsh-

bed. The place was found at last, but the water collected in a small pool proved so brackish that our ponies, sorely tried as they were by thirst after two marches under a still powerful sun, could not be induced to drink it.

The march resumed on October 17th afforded a good opportunity for appreciating the advantages which the 'old route' along the foot of the hills might have offered in days when the difficulty about water was less serious. During the night four of our camels strayed away to the tempting reed-beds in the south-west and could not be recovered until a week later, with the assistance of men dispatched from Marāl-bāshi. Notwithstanding the heavily increased loads and a late start the remainder of the transport covered on that day with ease a long march of twenty-four miles; for it led throughout over the smooth and open ground afforded by the constant succession of small fans along the foot of the hill chain (Fig. 78). The end of a projecting spur, known to Barat as *Vilvil*, formed a conspicuous landmark, and at its foot, about seven miles from camp, we left behind us the long belt of marsh previously described. Beyond it the range became considerably reduced in height, but still retained its uniform appearance of a steep rock wall. To the south the reed-beds completely disappeared, being replaced by small cones with living tamarisks stretching east and south as far as the eye could reach. And the view from this point ranged far; for soon after leaving Vilvil I sighted in the hazy distance the Mazār-tāgh hills beyond Marāl-bāshi. March beyond spur of Vilvil.

A peculiar feature breaking the easy monotony of the day's march was encountered towards its close. Here lines of dead Toghraks, all fallen and mostly in double rows, stretched for miles along the southern edge of the bare narrow fans that we were skirting. The trunks all looked as if they had for ages lain on the ground, exposed to decay. The trees had obviously grown up along lateral drainage channels, such as could still be traced in places, but without the slightest sign of recent water action. These channels must have collected moisture, which the range immediately above apparently received with some regularity during the prevalence of a less arid climate. Lines of dead wild poplars.

We had now reached a point where it was possible to sight, not only the high Mazār-tāgh peaks overlooking Marāl-bāshi from the east, but also the nearest of the other isolated small ranges that here rise island-like from the plain between the outermost T'ien-shan and the Yārkand river. They had already attracted my special interest on geographical grounds, when I passed some of them in the spring of 1908 on my way from Kelpin to Marāl-bāshi.[15] A long reconnaissance, which I then made from the latter place, had failed to carry me to the old remains reported to exist at the foot of the Lāl-tāgh range (Map 7. B. 4),[16] and as these might have some relation to the 'old route' I was endeavouring to trace, my first intention now was to continue our journey due east until we reached that site. Barat had visited it twelve years before and was ready to guide us straight to it. But he knew of no water on the way, a two days' march, nor could he feel certain that the 'Kak' he remembered at Lāl-tāgh actually held a supply. Regard for the ponies, which had already done three days' travel without a proper drink, obliged me therefore reluctantly to turn south-east towards Marāl-bāshi. Fortunately our survey along the foot of the mountains had extended sufficiently far to make it certain that the range, now trending in a straight line to the north-east and with increasing height, had its direct continuation in the barren hill chain I had surveyed in 1908 south of Kelpin. Mazār-tāgh of Marāl-bāshi sighted.

The necessity of guiding our convoy prevented a visit to the westernmost isolated little ridge jutting out from the plain at a distance of some six miles to the north-east of Camp XVI (Map 8. A. 1). It was known to Barat and also to the people of Marāl-bāshi by the name of Shikarwai. It was said to be visited periodically by 'Karaulchis' sent out by the officer commanding the Marāl- Ridge of Shikarwai.

[15] Cf. *Serindia*, iii. pp. 1309 sqq.

[16] See *ibid.*, iii. p. 1312.

bāshi garrison in order to keep watch over a pass in the range beyond; for in pre-rebellion times Kirghiz raids had been carried out through this pass upon Marāl-bāshi and the high road.[17] This ridge of Shikarwai has the same NW.–SE. bearing that marks off the other isolated desert ranges so sharply from the T'ien-shan system, and also shows signs of the same far-advanced erosion.

Arrival at Marāl-bāshi. As we moved on October 18th across the flat alluvial plain to the south-east between low widely scattered tamarisk-cones, we came, after marching about a mile and a half, upon two ruined huts roughly built of Toghrak trunks. They recalled similar but better-preserved structures that I had seen in 1906 at Bilēl-konghan.[18] It was impossible to make out whether they had served for shelter on an old route or as a shepherd station. No grazing exists now anywhere near this point, and when at last, about eight miles farther, the first reed-beds were reached, they proved to be all dead, occupying small terraces around which the ground had been lowered, and was evidently still being lowered, by wind-erosion. Living reeds and scrub, however, made their appearance as the northern edge of Marāl-bāshi cultivation was approached, and this we reached about four miles farther on at the tiny hamlet of Jaren-tolā. Beyond it another eight miles' ride, mainly across ground left uncultivated and overrun by low jungle, brought us to my old camping-place in Ayūb Mīrāb's garden, east of the tumble-down Bāzār that marks the town of Marāl-bāshi.

Section II.—OLD REMAINS AND ROUTES BEYOND MARĀL-BĀSHI

Preparations for desert crossing. A short halt was imposed at Marāl-bāshi by the need of careful preparations for my intended attempt to reach the Mazār-tāgh on the Khotan river by a short cut through the Taklamakān. From the experience of previous expeditions I could form some estimate of the formidable obstacles and the risks presented by the wide intervening belt of absolutely waterless drift-sand desert. The short desert journey just behind us, though over far easier ground, had served as a useful test of equipment and transport. Guided by it, I decided to lighten our *impedimenta* still further by sending all baggage beyond an absolutely necessary minimum to Khotan by the caravan route via Yārkand, and to reduce in the same way my camp to a few indispensable followers. By thus keeping most of our fine camels available for the transport of water in my six galvanized iron tanks and the forty odd goatskins I had brought from India, I could hope to overcome the difficulty about water. The approach of autumn weather, cooler than that experienced on our marches from Kāshgar, would help our camels to face their long fast and the other trials before them. There was thus compensation for the few days' delay which the wait for our runaway camels was bound to involve in any case.

Start for Lāl-tāgh. While the camels were given a good rest with such abundant grazing as the vicinity of Marāl-bāshi affords and our apparatus for the carriage of water was being thoroughly overhauled and tested by Naik Shamsuddīn, I was able to spare two and a half days for a visit to the hill range of Lāl-tāgh and its reported ancient site. Starting on October 21st with hired pony transport and a small number of labourers, I moved first to the north-east across the village tract known as Nōr, which extends beyond the left bank of the Kāshgar river-bed. Its name is derived from the peculiar system of wooden conduits (*nōr*) by which the irrigation water supplied, here as elsewhere in the Marāl-bāshi area, by the Yārkand-daryā is carried across the deep-lying Kāshgar-daryā. I have already before had occasion to refer to the difficulties that impede intensive cultivation around Marāl-bāshi. They consist partly in the inherent drawbacks of an irrigation system dependent on a canal head far below the spot where the river debouches and ever threatened by a shift of its bed; and, probably to an even greater degree, in the deficient agricultural aptitude

[17] Cf. *Desert Cathay*, ii. p. 426.

[18] See *Serindia*, i. pp. 272 sq.



78. OUTER HILL RANGE OF T'IEN SHAN SEEN FROM ROUTE TO VILVIL.



79. ON YARKAND RIVER BELOW NORTHERN OFFSHOOT OF CHOK-TĀGH.

ii i iii

80. RUINS AT LĀL-TĀGH SITE, NORTH-EAST OF MARĀL-BĀSHI.

of the population, all Dolāns who until very recent times led a semi-nomadic life and in places still continue to do so.[1] I found these difficulties illustrated on entering, at a distance of about four miles, a wide belt where fields and farms had been abandoned during recent years to luxuriant reeds and scrub. The water-supply was said to have been inadequate during the preceding few seasons; but the scarcity could not have been very serious, seeing that the young trees in the abandoned arbours and orchards were still flourishing vigorously.

Wind-eroded clay steppe.

Following a track known as *Kelpin-yoli*, by which the people of Kelpin are accustomed to make their way to Marāl-bāshi through the desert, we passed into a sandy steppe; here young Toghraks had grown up in plenty since irrigation was first extended, some seventeen years before, to the outlying cultivation belt that had now again been abandoned. After a march of about nine miles vegetation became restricted to sparse tamarisk-cones, many of them dead. These, too, disappeared near the point where we left the Kelpin track to make for a gap visible in the rugged hill range of Bēl-tāgh to the north-east. For over five miles we now travelled over a bare clay steppe, which soon began to show those regular wind-cut terraces or 'Yārdangs' with which I had become so familiar in the Lop basin. They reached here only to an average height of between four and six feet, with a bearing varying between N. to S. and NE. to SW. This bearing, like that of the Yārdangs met with in 1908 on my way south of Kelpin, clearly showed that the direction of the prevailing winds was here also much the same as in that far-off Lop desert where the effect of wind-erosion is so widely marked.

Hill chain cut through by wind-erosion.

But, on approaching the gap above mentioned,[2] I found a far more striking demonstration of the vast power exerted by wind-erosion over the whole Tārīm basin, and of the great part it has played over countless ages in shaping its surface formations. For the gap, about half a mile wide and lying at its bottom about 150 feet above the level of the plain, had manifestly been cut through by the force of the winds, which strike the range at right angles and are ever at work here with their corrosive agent, the drift-sand. To the south of the gap and along the south-western or lee face of the range the sand lies heaped up in huge dunes to an estimated height of at least 500 feet from the level of the plain. The crest of the range rises steeply above the dunes for another hundred feet or so, everywhere showing sharp cuttings like the top of a crenelated wall. The effects of wind-erosion, presented here on a huge scale, resembled in every detail those I had observed years before on the east face of the modern town walls of An-hsi and at the breached and half-effaced circumvallations of the ruined towns near An-hsi and Ch'iao-tzŭ.[3] In and near the gap no sand was lying, because the winds sweeping freely over the gentle gravel slope would carry off whatever particles of decomposed rock, &c., they had brought. But farther south, where the grinding work of the wind is actually proceeding along the hill crest, the sand, whether driven up from the north-east or locally produced by erosion, is allowed to settle down on the lee side and to accumulate in stationary dunes. The slight east to west bend in the direction of the range shown here by our survey may help further to account for the exceptional height of the accumulations at this point. Altogether no more striking illustration could be looked for of that great process of wind-erosion which has carved out and isolated all the bold island-like hills to the east and north-east of Marāl-bāshi.[4] I shall have occasion farther on to recur to the evidence here afforded.

[1] Cf. *Serindia*, iii. p. 1311. For a graphic description of the annually renewed barrage upon which Marāl-bāshi depends in the main for its irrigation, see Hedin, *Reisen in Z.-A.*, pp. 225 sq.

[2] See Map No. 7. A. 4. It is probably from this gap or pass, in Turkī *bēl*, that the hill range derives its name *Bēl-tāgh*. The break farther south where the Bēl-tāgh end faces the Achal-tāgh is too wide to be called *bēl*.

[3] Cf. *Serindia*, iii. pp. 1095 sqq., 1102 sq.

[4] It is a matter for special regret that the late hour at which the gap was reached and the necessity of pushing on to the foot of the Lāl-tāgh did not allow of photographs being taken here.

and to point out its bearing upon the question what broke the continuity of the ancient hill range that once probably extended across the Taklamakān from the vicinity of Marāl-bāshi to the Mazār-tāgh on the Khotan river.

March to *Lāl-kan.*

Some two miles beyond the gap we came, to my surprise, upon a large patch of living vegetation including reeds and tamarisk scrub, for which it seemed difficult to account. Stranger still appeared a broad belt of dead Toghrak forest, through which we made our way in darkness under Barat's guidance towards a point of the Lāl-tāgh where he remembered an old mining pit and two rock cisterns near by. We struck the point correctly after a total march of some 28 miles—but the 'Kaks' were found no longer to hold water. It was as well, therefore, that I had not carried out my original intention of making for Lāl-tāgh direct from our Camp XVI on 'the old route'. The now abandoned pit known as *Lāl-kan* was said to have been worked at one time for semi-precious stones, and from it the low hill chain of the Lāl-tāgh derives its name.

Old river-bed at foot of Lāl-tāgh.

The range, which we followed next morning along its foot towards the south-east, was cut by erosion into fantastic forms and, like most of these island-like hills near Marāl-bāshi, proved to be composed mainly of feldspar-carrying sandstone, stratified almost horizontally. At first only dead tamarisk-cones were to be seen on our right. But after rounding a little promontory of strikingly bold cliffs, four and a half miles from camp, there appeared lines of large dead Toghraks, and amongst them, a mile or so beyond, an unmistakable ancient river-bed skirting the foot of the Lāl-tāgh. It seemed to come from the south, and could manifestly originate only from some ancient branch of the Kāshgar river. This at the present day dies away in the marshes to the south and south-east of the hill islands of Tumshuk (Map 8. B. 1). The belt of Toghraks, among which I noticed one big old tree still green at its head, continued to skirt the foot of the Lāl-tāgh to near its end, and after covering a total distance of seven and a half miles from Lāl-kan we reached the ruined site that we were seeking, in a picturesque little combe opening from the south-east.

Ruined shrines of *Lāl-tāgh* site.

The remains of the site, as I had been led to expect by the fragments of stucco relievos brought from it and received in 1908 through Ayūb Mīrāb,[5] soon proved to be those of a Buddhist sanctuary. As shown by the rough plan (Pl. 3) and Fig. 80, they comprise in the centre a shrine (iii), completely destroyed, covering a rectangular area, approximately 76 by 50 feet, and raised on a solid brickwork platform about 12 feet high; on the slope close above it the foundations of a smaller structure measuring about 48 by 26 feet (ii); and adjoining the north-east side of the former a solid masonry tower (i) measuring at its foot about 36 by 20 feet. Fragments of stucco relievos, mostly small and all completely calcined, which a superficial cleaning brought to light both on the top of the platform that once carried shrine iii and below its south-west side, clearly belonged to the images and decoration of a Buddhist sanctuary, dating approximately from the T'ang period.[6] Among them I specially noted a piece from the drapery of a colossal image and the well-preserved head of an elephant, which probably formed part of a relievo frieze of the type represented at the temples of the 'Ming-oi' site near Shōrchuk, Kara-shahr.[7] From the appearance of the exposed masonry and from what the plentiful burrowings of local 'treasure-seekers' had disclosed of the debris, it was certain that the shrines in the centre had been destroyed by fire. Of a smaller structure to the east of the central pile and of two other little cellas nearer to it on the north and south, also burnt, only the bare outlines could be traced. On a low terrace about 30 yards to the south of shrine iii there survive the walls of an oblong building (v),

[5] Cf. *Serindia*, iii. p. 1312.

[6] For the specimens brought away and for other small objects recovered, see the Descriptive List at end of the section.

[7] Cf. *ibid.*, iii. pp. 1191 sqq.

measuring about 53 by 23 feet and completely filled with debris; this, judging from the refuse found at its NE. corner, may well have served as a monastic dwelling-place.

The complete clearing of the ruins, coupled with the necessary arrangements for labour and adequate transport of water, would have involved a greater sacrifice of time than I was able then to make without endangering my main programme. But even the rapid survey effected sufficed to throw light on some essential points of interest. It showed clearly that the remains of the site belong approximately to the same period as the ruined Buddhist sanctuaries on the hills of Tumshuk, some eleven miles away to the south-east,[8] and that their destruction by fire dates, like that of the latter, probably from the very commencement of the Muhammadan period. It is obvious that as long as the Lāl-tāgh site was occupied there must have been water in its immediate vicinity, and this can have been brought there only by a branch of the Kāshgar river, which still extends its deltaic channels and marshes far beyond Tumshuk. A variety of local observations fully support this conclusion. The ancient dry river-bed passed by us on the way to the Lāl-tāgh site and coming from the south-west has already been noticed. Though I could not actually locate it near the ruins, yet the belt of dead Toghraks through which we passed on our way from the ruins to the gap between the Achal-tāgh and Bēl-tāgh (see below) sufficiently proves the continuation southward of this former bed. Similarly the ancient canal, to be noticed presently, that we crossed in the same part of our route, can have received its water only from the south, i. e. from the area west of Tumshuk, which is still reached by flood-beds and irrigation canals from the Kāshgar river.[9] Site once reached by water from Kāshgar river.

Now, on examining the topographical facts recorded by our surveys of 1908 and 1913, we see at once the special antiquarian interest attaching to the Lāl-tāgh site in its bearing on the question of an earlier route towards Kāshgar. My journey from Kelpin to Tumshuk in May, 1908, had enabled me to trace an extensive area of ancient cultivation round the ruined fort of Chong-tim (Map No. 7. B. 4), situated some sixteen miles to the north of Tumshuk and now completely abandoned to drift-sand desert. When discussing the observations there made, I was able to show that this area had been occupied down to T'ang times, and that there was evidence that an ancient route led to it straight from the vicinity of Chilan (Map 7. C. 3), where the present Ak-su–Kāshgar high road leaves the foot of the hills.[10] A look at the map proves that the Lāl-tāgh site lies in the direct continuation of this route, and that the gap between the hills of Lāl-tāgh and Chōl-tāgh—as the rocky hill chain north of the Tumshuk ruin is called—forms the natural and most convenient passage for such a road. Thus the position chosen for the Buddhist sanctuary at the barren foot of the Lāl-tāgh is also fully accounted for. It flanked a much-frequented route at a conspicuous point, in the same manner as the popular Muhammadan shrine named Ōkur-mazār marks the point where the present high road between Tumshuk and Marāl-bāshi passes below the picturesque southern spur of the hill chain known as Achal-tāgh or Ōkur-mazār-tāgh (Map 8. B. 1).[11] Ancient route passing Lāl-tāgh.

Having thus traced the assumed ancient road from Ak-su as far as the Lāl-tāgh site, there still remains for us to consider the line of its probable continuation to the south-west. Such a line had necessarily to cross the chain of hills represented by the Bēl-tāgh and its southern extension, the Achal-tāgh or Ōkur-mazār-tāgh; and the map shows that only two passages were available Line of ancient route to SW. of Lāl-tāgh.

[8] Regarding these shrines of Tumshuk, situated at the southern end of the Chōl-tāgh and at the northern extremity of the Tumshuk-tāgh facing it (Map 8. B. 1), see *Serindia*, iii. 1309. A full account may be expected from Prof. Pelliot, who in 1906 effected systematic excavations at the former site, and from Prof. von Le Coq, who did similar work at the latter in 1913–14.

[9] For a brief description of this ground, see *Serindia*, iii. p. 1310.

[10] See *ibid.*, iii. pp. 1307 sq.

[11] See *ibid.*, iii. Fig. 344.

for it. One is represented by the gap in the Bēl-tāgh above described; the other leads through the defile that separates the southern end of the Bēl-tāgh from the northern offshoot of the Achal-tāgh formed by the low rocky spur of Arach. I had visited this defile on my first rapid reconnaissance from Marāl-bāshi in May, 1908. I ascertained on that occasion that the high road from Tumshuk to Marāl-bāshi had in quite modern times, until after the Chinese reconquest of the Tārīm basin in 1877, passed through it, the present line past the Ökur-mazār being then impracticable owing to great undrained marshes in the area now occupied by the lands of Chār-bāgh.[12] I had been able to trace there the remains of old watch-towers and of other fortifications meant to guard the defile, and their presence left no doubt that an important road must have passed there in ancient times.

Traces of old canal.

I had no time then to examine the desert ground to the east of the defile, and this was an additional reason for now returning to Marāl-bāshi by this passage, appropriately known as *Achal*, 'the opening'. I found no reason to regret the decision. We passed numerous lines of dead Toghraks with shallow dry channels between them for the first two miles from the Lāl-tāgh site, clearly showing by their direction that running water must have reached this part from the south, i. e. from the area west of Tumshuk still liable to inundations from the Kāshgar-daryā. Then, after crossing a belt of scanty tamarisk-cones, we emerged upon a bare clay steppe undergoing wind-erosion, and here for more than a mile came across frequent patches of ground covered with ancient potsherds and other 'Tati' remains. In the midst of them we crossed the unmistakable embankment of an old canal about 12 feet across at its top and owing to erosion of the surrounding land raised some 5 feet above the present ground level.

'Tati' remains near *Achal*.

Low dunes have overrun much of the ground nearer to the defile, and these, together with the approach of darkness, made it impossible to ascertain whether this 'Tati' and the one traced in 1908 close to the east of the defile belong to one continuous area of old occupation. The small relics picked up *en route*, including paste beads and a bronze ring, do not permit of any close dating; but the fragments of pottery, whether plain or glazed, have a distinctly ancient look.[13] Obviously the greater extent of the once cultivated area must have lain in the direction of the canal that seemed to run from south-east to north-west. It remains for some future traveller to follow its course farther across the bare steppe and low dunes that stretch away to the present high road south-eastward. I myself felt obliged through practical considerations, including the need of securing water for our animals, to turn back towards Marāl-bāshi by the track which I had followed in 1908 on my first visit to Achal. The marshes that I then saw near the north end of the Achal-tāgh had completely dried up, but the extensive beds of reeds and luxuriant tamarisk jungle still flourished. Making our way through them by the guidance of the stars we reached water late that night at the isolated little patch of cultivation marked on the map (No. 8. A. 1) as Tālib Hāji's farm. Next morning Marāl-bāshi was gained by the high road busy with market traffic (Fig. 85).

Modern route from Ak-su to Marāl-bāshi.

The excursion just described concluded what investigations concerning the old road line to the north of the terminal course of the Kāshgar river I was able to make. I hoped to complete them in 1915 on my return journey to Kāshgar by tracing the ancient route in the desert between Chilan (Map No. 7. C. 3) and Chong-tim. But circumstances beyond my control made it impossible for me to spare the time required.[14] So it remains for me only to sum up such conclusions as, in my opinion, may be drawn from the surveys and archaeological observations actually made. In the first place it deserves to be noted that, as is evident from Maps Nos. 7, 8, the line followed by the present high road from Ak-su towards Kāshgar makes a considerable detour between Chilan and

[12] Cf. *Serindia*, iii. pp. 1310 sqq.

[13] For specimens see the List at end of section.

[14] See below, Chap. XXIV. sec. ii.

Marāl-bāshi. From the limits of the cultivated zone of Ak-su as far as Chilan (a small roadside hamlet receiving its scanty water from the debouchure of the Kelpin streams) the high road keeps close to the foot of the gravel glacis below the outermost T'ien-shan hill range and along a line that runs practically straight in the direction of Marāl-bāshi. But beyond Chilan it turns off to the south. The reason for this, considering the total absence of any cultivated area until the vicinity of Tumshuk is reached, can be no other than the necessity of finding halting-places with water and grazing. The successive stages of Yaide, Yaka-kuduk and Chādir-kōl are points where water is obtainable either from wells fed by underground drainage from the dying Kāshgar river or else from terminal beds periodically filled by its summer floods.[15]

Ancient route once reached by water.

During the time of these floods traffic is liable to be much impeded by inundations on the line followed by the present road through the riverine jungle-belt between Yaka-kuduk and Ak-tam. This trouble, as well as a great detour, would be completely avoided were it now possible to take the straight line from Chilan through the desert to the sites of Chong-tim and Lāl-tāgh. It is solely the absence of water along this line that prevents it from being used as a caravan route at the present day, and that this obstacle did not exist down to T'ang times is conclusively proved by the remains of ancient occupation at those two sites. To this may be added the evidence of the high ruined tower of *Soksuk-shahri* sighted by me in 1908 to the SW. from the outlet of the Kelpin river; and also the reliable information then received from my 'treasure-seeking' guides as to the survival of ancient mounds at two points between Chong-tim and Soksuk-shahri.[16] I need scarcely point out that the low dunes of drift-sand which now cover much of the clay steppe on either side of Chong-tim can only have overrun this ground since it ceased to be cultivated by means of the canals whose lines may still be traced.[17] The abundance of living tamarisk-cones and scrub between these dunes proves that subsoil water must find its way there even now, though perhaps at a considerable depth.

Reduced volume of terminal Kāshgar R.

Whatever the immediate cause of abandonment may have been in the case of the area formerly occupied about Chong-tim and Lāl-tāgh, it is certain that the volume of water available nowadays in the terminal course of the Kāshgar-daryā beyond Marāl-bāshi would not permit of irrigation being carried so far as the first of these sites. We have here clear proof of 'desiccation' during the last thousand years or so, as far as that river is concerned, and whatever its character or explanation may be,[17a] we are fully justified in taking the fact into account when we consider the remaining portion of the Ak-su–Marāl-bāshi road, that which lies to the west of the old sites just mentioned.

[15] The brackish wells of Yaide evidently derive their water from the old river-bed known as Ghōra-akin, passing some three miles farther south. This, according to local information supported by topographical indications, connects with the dried-up river-course, known by the same name, that I traced in 1908 past ruined sites in the desert north of Tumshuk; cf. *Serindia*, iii. p. 1309.

Yaka-kuduk and Chādir-kōl are somewhat less desolate stations situated in the belt of luxuriant Toghrak jungle that accompanies the terminal flood-bed of the Kāshgar river called Kara-kōl-jilga (see Map 7. c. 4). This bed, which is periodically filled, seems to have its continuation in the well-marked bed, also known as Kara-kōl, that we passed south-west of Ghōra-chōl, the southernmost village tract of the Ak-su district (see Map 7. D. 4). This was said to receive water from the Kāshgar-daryā during summer floods.

The hydrography of the whole Kāshgar river delta from the vicinity of Marāl-bāshi, where it may be said to have its present head, down to its apparent extreme end south-west of Ghōra-chōl remains still for the most part unsurveyed. This whole deltaic system is obviously liable to great periodical changes, and the close approach to, or junction with, it of the flood-beds of the Yārkand river still further complicates its examination, whether as regards the present or past periods.

[16] Cf. *Serindia*, iii. p. 1308.

[17] The rapidity with which drift-sand spreads itself from the adjoining desert areas over ground that was once irrigated is well illustrated by my observations at the village sites north of Nan-hu, abandoned only since about 1840 and in places only since the Tungan rebellion; cf. *Serindia*, ii. pp. 625 sqq.

[17a] Regarding a likely cause of 'desiccation', as manifested by a diminution during the historical period of the volume of water carried by the rivers of the Tārīm basin, see now my paper on 'Innermost Asia', *G.J.*, 1925, lxv. pp. 487 sqq.

Ancient route passing Marāl-bāshi.

In view of the old remains traced at and near the gap of Achal, it is, I think, safe to assume that the ancient route passed on from Lāl-tāgh to this defile, as did the modern route via Tumshuk until some forty years ago. But beyond it, topographical facts, combined with such archaeological indications as I have discussed above in connexion with my journey from Kāshgar, point to a bifurcation. On the one hand it is on general grounds highly probable that there was a south-western continuation of the ancient route to the vicinity of the present Marāl-bāshi; for though the present town is of avowedly modern origin, and probably the surrounding oasis also,[18] yet a look at the map shows that the branch of the road which forms the easiest and most direct connexion between Ak-su and Yārkand must always have passed the site in question. Whether there existed any large settlement during ancient times in a position corresponding to the present Marāl-bāshi is doubtful, seeing that the detailed accounts of the 'Western kingdoms' contained in the Han and T'ang Annals make no mention of a special territory or tract at this place.[19]

Inundations from Kāshgar R.

However this may be, it is clear that a route leading from the vicinity of Marāl-bāshi to Kāshgar along one side or another of the Kāshgar-daryā must always have served as a conveniently direct line of communication. But it is equally certain that the use of such a route, like that of the present cart road along this line, must have been much impeded by the annual inundations caused by the summer floods of the river.[20] These inundations are likely to have been even more troublesome then than now; for there is abundant and convergent antiquarian evidence that the rivers of the Tārīm basin carried a greater volume of water during the historical periods with which we are concerned than they do now.

Advantage of alternative route.

It is on this ground, I believe, that an alternative route, keeping close to the foot of the outermost hill range, such as I was able to follow beyond Kalta-yailak, must have been specially convenient in old times, at least for a portion of the year. This line could be reached with ease from the Achal defile by striking due west across an open steppe well removed from the risk of flooding. The traveller who had reached the foot of the hill chain somewhere near our Camp XVI (Map 8. A. 1) was assured of continuous easy progress beyond it until he reached the extreme north-eastern extension of the cultivated area of Kāshgar. Even at the present day, carts could easily follow this line right to Kāshgar town. The actual marching distance along it (assuming the direct road from Kalta-yailak to Kāshgar were followed as surveyed by Lāl Singh, Map No. 5. A, B. 1) would exceed that by the southern route along the river only by a few miles, if at all.

'Old road' along desert range W. of Marāl-bāshi.

The want of water that nowadays precludes the regular use of this northern route over a distance of three marches, or about fifty-five miles, cannot have existed in old times; for we have seen that water from the Kāshgar river must have reached the foot of the hills as far as Khitai-shahri, during the period when that site was occupied, and may probably have extended to a considerable distance farther east. I have also shown that, even where old remains of human occupation fail us, we can trace indications that the hill range itself may have received more moisture within the historical period. The occasional drainage which allowed rows of Toghraks to flourish along the small alluvial fans would certainly have sufficed to fill rock cisterns or artificial reservoirs near the mouths of the little valleys. I conclude therefore that the local belief, vague as it is in details, as to the 'old road' once leading along the foot of the desert range above Marāl-bāshi rests on a foundation of fact quite as solid as that which allows us to trace the ancient high road from Ak-su through the sites of Chong-tim, Lāl-tāgh and Achal.

[18] Cf. *Serindia*, iii. p. 1310, note 2.

[19] We may agree with M. Chavannes in placing somewhere in the Marāl-bāshi tract the *Wo-shê-tê* 握瑟德 mentioned in the account of Kao Hsien-chih's Pāmīr and Yāsīn expedition as half-way between Ak-su and Kāshgar (cf. Chavannes, *Turcs occid.*, p. 152, note). But there is nothing to indicate the exact position of the locality. [For a T'ang itinerary past the Mazār-tāgh, cf. Chap. XXIV. sec. iii.]

[20] Cf. Hedin, *Reisen in Z.-A.*, p. 219.

LIST OF OBJECTS EXCAVATED OR FOUND AT LĀL-TĀGH SITE

L. Tāgh. 01. Wooden finial, similar to M. Tāgh. c. 06, but with simplified mouldings. Split and perished; part broken away. H. 5¼", diam. 2¾".

L. Tāgh. 02. Pottery fr.; red, well-washed clay, glazed green, with two roughly drawn black annular lines crossing it. 2¼" × 1¾" × 3/16".

L. Tāgh. 03. Pottery fr., rectang. Fine red clay with thin dull buff slip on outside. 2" × 1¾" × 3/16".

L. Tāgh. 04. Bronze collar, conical, with bead moulding round larger end. Cast; corroded. Larger diam. 1¾", smaller 1½"; h. ½".

L. Tāgh. 05. Fr. of turquoise-coloured paste: small, circular, broken at one edge. Diam. ⅞", gr. thickness 3/16".

L. Tāgh. 06. Bronze finger-ring, thickened at bezel into projecting keel shape. No hollow for jewel. Split at thin part. Diam. ⅞".

L. Tāgh. 07. Paste (?) bead; ring-shaped, dark opaque; quoit-shaped in section. Diam. 9/16", thickness ¼".

L. Tāgh. 08. Stucco relief fr. Face-mask of elephant, very boldly modelled. Prominent frontal bones, brow, and bulging eyes of quasi-human type. Part of upper margin of R. ear preserved. Trunk broken off, and tusks missing from round sockets. Hard; prob. burnt accidentally. 7¼" × 5" × 2¼". Pl. IV.

L. Tāgh. 09. Stucco relief fr. Top-knot of hair, as L. Tāgh. 017 and *Ser.*, iv. Pl. CXXXIV, Mi. xi. 003. Burnt hard; well preserved. 3¼" × 2¾".

L. Tāgh. 010. Stucco relief fr. L. side of high top-knot, like preceding, but larger. Burnt; well preserved. 3¾" × 2".

L. Tāgh. 011. Stucco relief fr., representing dragon devouring human being who tries to force monster away. Dragon's head with wide open jaws and full eye in profile to R., very spirited and well modelled. Twisted body composed of double plain bands with pearls between. Human fig. male (?); head missing; action excellent and proportions good. Fr. broken on two sides, and on one shows hole for tenon. Lightly burnt, but friable at broken edges; well preserved. 4¾" × 4½". Pl. IV.

L. Tāgh. 012. Stucco relief fr. Five-strand cord and tassel from valance as *Ser.*, iv. Pl. CXXXVII, Mi. 1. i. 004. g; burnt. The five strands are lotus stalks and are tied together by band of pearls bordered by double strands. From below issue four radiating lotus buds or sepals. Well preserved. For similar frs., see L. Tāgh. 014, 019. 2¾" × 2".

L. Tāgh. 013. Stucco relief fr., representing stem with small leaflets growing out from either side. Burnt; well preserved. 2½" × 1¾".

L. Tāgh. 014. Stucco relief fr. Tassel similar to L. Tāgh. 012. Stalks missing; remains of colour wash. Burnt; well preserved. 2¾" × 1¾".

L. Tāgh. 015. Stucco relief fr. R. hand, open, with six-petalled lotus in relief on palm; cf. *Ser.*, iv. Pl. CXXXVII, Mi. xviii. 005. Hand well modelled and almost in the round; little finger broken. Hole up centre through wrist for core; shows clay of attachment at back, which is unmodelled. Burnt. Red clay. Length 3". Pl. IV.

L. Tāgh. 016. Stucco relief fr. Central loop of high top-knot, similar to L. Tāgh. 010. Burnt. 1¾" × 2¼".

L. Tāgh. 017. Stucco relief fr. Top-knot similar to L. Tāgh. 09. Burnt; rather fragile. 3" × 3".

L. Tāgh. 018. Stucco relief fr., appliqué orn. Eight-petalled lotus or rosette. Centres of petals and centre of flower in high relief; sepals showing between petals. Burnt; fairly hard. Diam. 2¾".

L. Tāgh. 019. Stucco relief fr. Tassel similar to L. Tāgh. 012. Traces of colour wash. Well preserved. 3¼" × 2¼".

L. Tāgh. 020. Stucco relief fr. Stilted arch of beads bordered by fillets, enclosing peacock (?) standing to L. p. Prob. finial or head ornament. Burnt; broken at L. p. lower corner. 3¾" × 3". Pl. IV.

L. Tāgh. 021. Stucco relief fr., from life-size human face. L. eye and cheek, with lower part of ear and hair at back. Well modelled and colour-washed yellowish buff. Burnt; surface abraded. 6" × 3½".

Section III.—A HILL RANGE IN THE TAKLAMAKĀN

On October 25th I set out from Marāl-bāshi for my long-planned expedition into the desert south-eastwards. Its object, as already briefly stated, was to reach the Mazār-tāgh range on the Khotan river, if possible, direct through the sands of the Taklamakān. Apart from the hope of gaining time by this short cut and the attraction presented by such a venture across an unknown tract of desert, there was a special geographical interest attaching to the enterprise. Our surveys of 1908 had shown reason to believe that the Mazār-tāgh hills are closely allied in geological structure to those remnants of an ancient range which the isolated rock islands to the east of Marāl-bāshi (Map No. 8. A, B. 1), repeatedly referred to in the preceding sections, undoubtedly represent. We had then been able to trace the Mazār-tāgh extending for over twenty miles from the Khotan

Start from Marāl-bāshi into desert.

river into the Taklamakān in the same SE.–NW. direction that those detached Marāl-bāshi hill chains uniformly present.

Connexion with Mazār-tāgh on Khotan R.

This fact in itself helped, in an important degree, to confirm the theory that the Khotan Mazār-tāgh in its genetic character formed part of a geologically very ancient range that started at approximately right angles from the outermost T'ien-shan between Marāl-bāshi and Kelpin and once stretched diagonally across the Taklamakān.[1] The observations at the Bēl-tāgh and Lāl-tāgh that are set forth above furnished a striking demonstration of the way in which those bold island-like hills east of Marāl-bāshi have been carved out and isolated by the corrosive action of wind-driven sand prolonged through ages. The vastly greater accumulations of drift-sand in the desert south-eastwards would adequately explain the breaking up of the continuity of that assumed ancient range across the Taklamakān.[2] But actual survey of the ground was needed to supply definite proof.

Risks of intended desert crossing.

I was under no illusions as to the serious difficulties that a march across absolutely waterless ground covered with high dunes, to a point more than 130 miles distant, would certainly present. Its risks were sufficiently illustrated by Dr. Hedin's experiences during the bold journey that he undertook, starting towards the end of April, 1895, from the same ground and making his way through the sandy wastes eastward. It had ended in the destruction of his caravan and his own narrow escape from death by thirst and exhaustion.[3] In order to guard against the dangers to which this final disaster had apparently been largely due, I had taken care to choose a season cooler and hence far less trying to men and camels; to assure the provision of an adequate supply of water and to lighten the loads of each animal as much as possible.

Preparations for attempted crossing.

For the latter purpose I brought from Marāl-bāshi six hired camels, all that I had been able to secure, to act as a 'supporting party' to our own twelve fine animals on the initial stages of the desert crossing. Nor had I overlooked the advantage of strengthening the human element in my party. None of my men had previous experience of serious desert travel except Hassan Ākhūn, the trusted camel-man of all my Turkestān travels, and he, I knew, would be too fully taken up with looking after his animals to do my reconnoitring, &c. So I had been particularly pleased when, in compliance with the summons I had previously dispatched, Kāsim Ākhūn, the hunter from Islāmābād on the Khotan river, arrived at Kāshgar with my Keriya camels. Ever since my expedition to Dandān-oilik in 1900 I had learned to value and trust the pluck, sense of locality, and true desert instinct that a lifetime spent in hunting trips and other lonely wanderings in the Taklamakān had bred in this wiry and ever resolute man (Fig. 86).[4]

March to Yārkand-daryā.

The three marches that brought us from Marāl-bāshi to the edge of the great drift-sand desert do not call for a lengthy account. The first lay across the wide, level plain, covered with reeds and scrub, that divides Marāl-bāshi cultivation from the left bank of the Yārkand river. Near Kara-ken we passed a well-marked depression through which flood water reaches the extensive marsh NW.

[1] Cf. Hedin, *Reisen in Z.-A.*, p. 242. This connexion appears to have been already assumed by Prejevalsky, who first saw the Khotan Mazār-tāgh in 1877. (The doubt expressed, *ibid.*, p. 387, note 3, as to the designation *Mazār-tāgh* for this hill chain is not justified.)

[2] Cf. the explanation given below, p. 88.

[3] Cf. Hedin, *Reisen in Z.-A.*, pp. 241 sqq.; *Through Asia*, i. pp. 531 sqq.

[4] Regarding Kāsim Ākhūn and his father Aḥmad Merghen ('the hunter', † *circ.* 1907), see *Ruins of Khotan*, pp. 272, 275, &c. They had both shared Dr. Hedin's memorable march from the Keriya river end to Shahyār; cf. *Through Asia*, ii. pp. 788 sqq., 847.

As an instance of Kāsim Ākhūn's remarkable instinct of locality, a true sense of the compass, I may mention that without any knowledge of the map and without ever having previously been west of Khotan, he was able on our start from the desert hills south of the Yārkand-daryā to point out to me with a very close approach to accuracy the bearing in which he thought his familiar landmark, the Mazār-tāgh on the Khotan-daryā, was to be looked for. Yet since leaving his home he had done a roundabout journey via Yārkand and Kāshgar amounting to a total marching distance of well over 500 miles.



81. VIEW TOWARDS MAZĀR-TĀGH FROM ACROSS YĀRKAND RIVER.



82. DUNES OVER NORTH END OF KUM-TĀGH, SEEN FROM SHORE OF CHÖL-KÖL.



83. HIGH SAND RIDGES BETWEEN CAMPS XXVII–XXVIII, TAKLAMAKAN.



84. LIVING AND DEAD TAMARISKS IN RIVERINE JUNGLE OF KARA-KOL.



85. MARKET TRAFFIC ON ROAD TO MARĀL-BĀSHI.



86. KĀSIM ĀKHŪN, AZĪZ PĀWĀN, AND TOKHTA ĀKHŪN.
(See pp. 87 sq., 91.)

of the Mazār-tāgh, whence it irrigates the fields of Chār-bāgh. Less than a mile from where we camped by the river bank we crossed a canal, known as *Kodai-daryā*, which during the flood season of the river carries water to the Chaghān-köl marsh SW. of Tumshuk; this in turn serving as a natural reservoir for the irrigation canals of villages farther east.

On the morning of October 26th we crossed the river at a ford where the single bed actually holding water was about 55 yards wide with a maximum depth of 4 feet, the velocity of the current being only about 1·7 foot per second. The flood bed (Fig. 81) was nearly a mile wide, and some idea of the huge volume of water that passes down at the height of the summer floods could be formed from the statement of our guide, a local hunter called Azīz (Fig. 86), that during about a month the water then overflows the steep clay bank, some 16 feet high, which bounds this flood bed on the south. All the day's march led through rich grazing, mostly of reed-beds, and luxuriant young jungle. The autumn tints of the belt of vegetation contrasted vividly with the dark brown and red of the desolate hill chains of the Mazār-tāgh to the north and the much lower Kum-tāgh to the south. The latter, which appeared nowhere to rise more than about a thousand feet above the riverine flat, was seen to have its south-west and north slopes overlaid by huge accumulations of dunes (Fig. 82) very similar to those that we had observed on the Bēl-tāgh.[3] Ford across Yārkand river.

That the Kum-tāgh, as it is appropriately known in consequence, represents a direct continuation of the Mazār-tāgh is shown by the map (No. 8. B. 1); and this is confirmed by the prevalence in the rocks of the Mazār-tāgh of the same calcareous sandstone containing feldspar and permeated by thin porphyrite strata that constitute the main formation of the Kum-tāgh, as indicated by Dr. Hedin's specimens and my own.[4] The defile through which the Yārkand-daryā passes between the two hill chains proved to be only about five miles wide. It presents a very striking feature in the river's course, which everywhere else, from the point where it debouches above Yārkand right down to its termination in the Lop-nōr marshes, passes solely across level plains of alluvium and drift-sand. I shall have occasion below to touch upon the question of the genetic relation which may be surmised to exist between the river course at this point and the survival by its side of the highest among the island-like hills that form part of the ancient diagonal range. Defile between Kum-tāgh and Mazār-tāgh.

We camped near fine groves of Toghraks growing amidst reed-beds and low dunes to the north of the Kum-tāgh. This is faced on the east by a bolder and higher hill range, running in a parallel direction, approximately NW.–SE., and extending from the Yārkand river for a distance of over twelve miles. It is known to the Dolāns of Marāl-bāshi by the name of Chok-tāgh. The depression between the two hill chains, about four miles across at its widest, is filled for the greater part by a far-stretching lake, filled annually by the inundation of the river and known as Chōl-köl, the 'desert lake'. Its southernmost end was to serve as the starting-point for our desert venture, just at it had for that of Dr. Hedin. To reach it we, like him, found it best to proceed by the level and open stretch of ground that divides the west shore from the foot of the Kum-tāgh. After crossing, not without some trouble, a series of depressions in which water remained from the last summer flood, we skirted the sandy glacis of an extreme north-eastern offshoot of the Kum-tāgh. It was of interest here to note that the surface consisted of small flakes of completely decayed rock debris, dark red and of slaty appearance, forming a thin layer over fairly fine sand. The steady deflation and corrosion that is grinding away these remnants of the ancient mountain range could not find a better illustration. Lake between Kum-tāgh and Chok-tāgh.

Ever since leaving the river we had been following a well-marked cart track, and after skirting the reed-beds that fringe the lake shore we came to a low but steep ridge jutting out from the foot of the Kum-tāgh. It was found to consist of detritus of a reddish rock, a hard silicious Salt-digging above W. shore of lake.

[3] See above, p. 75.

[4] Cf. Hedin, *Reisen in Z.-A.*, pp. 220 sq., 241.

sandstone, intermixed with lumps of rock salt.[7] The neighbouring spurs of the Kum-tāgh seemed to be of the same formation, and the foot of the hill-side was everywhere seen to be studded with shallow pits, the result of salt-digging operations. The point is known as *Tuzluk* ('the salt place') and marked by a couple of reed huts. Beyond this we continued across the bare inundation belt by the side of the lake, which, towards its southern extremity, shrunk considerably in width and split up into a series of lagoons between extensive reed-beds (Map No. 8. B. 2).

Filling of water-tanks, &c.

The statement of Azīz 'Pāwān', that on a hunting trip the year before he had found there drinkable water, induced us to pitch camp amidst tamarisk-cones not far from the southernmost of these lagoons. But the water proved decidedly brackish, probably because the lake reservoir had not been sufficiently refilled by the last summer flood, and next day we had to move back with the camels some six miles before fresh water was found by the lake shore wherewith to fill tanks and skins for the journey. As the water was very shallow and the men had to wade far out, it took practically a whole day's work to fill, secure, and load up our six galvanized iron tanks and the forty-two goat-skins brought from the 1st Sappers and Miners' Workshops at Roorkee.

First dunes encountered.

On October 29th we set out to the south-east after a start delayed by the packing and distribution of the heavy loads of water. For three miles we crossed bare salty soil, marking a former extension of the lake end, now dried up. Then the first dunes were reached, stretching in irregular lines across flat ground of disintegrated loess dust, covered on its surface with abundant remains of quasi-petrified reeds and scrub. On this ground, which extended for about another three miles and obviously marked a former riverine belt, living vegetation was entirely absent. Farther on the dunes increased in height to thirty feet or more, and lay much closer together. Yet scanty living tamarisk scrub appeared again between them, and in a small depression we found even a group of young Toghraks rising above the sand. Their presence encouraged the hope that subsoil water was near, and on pitching camp here, a well dug to a depth of about four feet sufficed in fact to reach it. When the march was resumed next morning we found the dunes growing rapidly higher and very closely packed. The crests of individual dunes here faced with their concave sides regularly to the south-south-west. But the huge ridges or 'Dawāns' into which they lay heaped up, and which we soon encountered rising in endless succession to heights of 200–300 feet, were found to run invariably with an approximate bearing E.N.E.–W.S.W. Their lines thus lay at a fairly wide angle diagonally across our intended direction, and consequently involved constant ascents and descents, both very trying to the camels.

Direction of sand 'Dawāns'.

It soon became evident to me that this uniform bearing of the 'Dawāns' was a result of a law that I had previously observed in the desert west of Lou-lan, in the Keriya river delta, and elsewhere, under the action of which these big accumulations of drift-sand in the Taklamakān are aligned parallel to the main direction of the nearest large river.[8] But there were important differences to be noted here and there distinctly unfavourable to us. In the areas of high sands previously crossed by me these 'Dawāns' had not presented themselves as unbroken chains such as faced us here, but as separate ridges varying in length, yet always showing at their ends low saddles or shoulders over which movement with laden camels was comparatively easy. The steering round those 'Dawāns' had indeed compelled us to make considerable detours; but the broad and flat valley bottoms found between them afforded easy ground, and the march across it served to give relief to the camels.

Difficulties of progress across Dawāns.

The tract now encountered offered obstacles far more formidable in all respects. To get round the 'Dawāns' was impossible, for nowhere did they show distinct saddles or breaks. To move

[7] For the specimens taken here and beyond, see Prof. Sollas's App. O.

[8] Cf. *Serindia*, i. pp. 241, note 2, 451 sq.; iii. p. 1239; also Hedin, *Central Asia*, i. p. 363.

along their tops with a view to save the constant ups and downs so trying to laden camels and thus to reduce strain at the cost of distance would in any case have been useless, since those tops were invariably crowned by huge dunes very steep-edged on their lee side and consequently such as camels could not possibly skirt or 'traverse'. Nor was relief to be sought in the depressions or valleys; for in proportion as the 'Dawāns' rose to greater height these depressions at their bottom became more and more smothered with dunes. At first there were still a few little patches of eroded level ground at the bottom of the valleys that we crossed after four and five and a half miles, respectively, from Camp XXVI, and near them a little living tamarisk scrub (Fig. 87). But beyond this point there was no flat ground to be found even in the valleys, and progress with the heavily laden camels became painfully slow. Careful levels taken along our track a couple of miles before reaching Camp XXVII showed an aggregate ascent of more than 350 feet over a single mile's marching distance as measured by cyclometer, with corresponding descents even more trying to the heavily laden animals. Measurements similarly taken over different average stretches on that day's march proved that the windings involved by the only practicable route line always added from 30 to 40 per cent. of marching distance to the actual progress in a straight line as marked on the map. No wonder that the hired camels already began to show serious signs of exhaustion towards the close of that day.

Finds of worked stones.

But an interesting discovery awaited us at its end. As we descended into a valley running as usual ENE.–WSW., and whose bottom lay some 250 feet below the point where we had crossed the adjoining 'Dawān', I noticed the edge of a wind-eroded clay terrace protruding from the side of a dune. By the steep Yārdang-like side of this terrace there ran a narrow trench, dug out by wind-erosion to a depth of about 50 feet and its lowest point showing a few small living plants. Here Kāsim Ākhūn, returning during the night, succeeded in striking scanty water after digging down about five feet. Narrow patches of the same hard grey clay reappeared farther on and induced me to follow the valley bottom for about a mile or so eastward (Fig. 88). Soon we picked up, wherever the bare ground showed, small pieces of stone, some roughly worked, some mere lumps. The former seemed to resemble the small stone implements which had been met with in plenty in the Lop desert on my march to the Lou-lan Site in 1906.[9] Among the specimens, which are described in the List below, I thought I could recognize some blades of the 'pygmy' type, and a few cores, the rest being coarse irregular flakes struck off by man but not themselves utilized.[9a]

Palaeolithic occupation.

The presence of these remains of the Stone Age, scattered on the surface of whatever small patches of eroded ground appeared between the dunes, clearly proves occupation by a palaeolithic settlement of what is now utterly lifeless desert, nearly thirty miles away from the nearest traceable bed of the Yārkand river. That the latter could ever have followed in prehistoric times a course so far south appears to me distinctly improbable considering the general configuration of this portion of the Tārīm basin, which implies a steady if gentle rise towards the glacis of the K'un-lun.[10] But in view of what I shall have occasion to point out below as regards the relation between the surviving fragments of the ancient desert range and the present river courses, the possibility of

[9] Cf. Mr. R. A. Smith's paper in *Man*, xi (1911), pp. 81 sqq.; also *Serindia*, i. p. 357; below, Chap. VI. sec. i, v.

[9a] [The materials, according to Mr. R. A. Smith, are chert, jasper and quartzite.]

[10] For reasons explained elsewhere, it would be wrong to attach too great importance to comparatively small differences of elevation records derived solely from aneroid and hypsometer readings. Yet it deserves to be noted that our height records, which show fair consistency along the neighbouring portion of the Yārkand river course (see Map No. 8. A–C. 1) and particularly around the Chok-tāgh (Camps XXIV, XXV, XXX), seem to indicate a distinct rise of the ground for our three desert marches, the computed heights for Camps XXVI, XXVII, and XXVIII being 3,610, 3,710, and 3,890 feet respectively. Of these camps only the last stood on a sand ridge and therefore above the level of the underlying clay.

the Yārkand river having once carried its water round the south foot of the Kum-tāgh and Chok-tāgh is not altogether excluded.[11] In any case the moister climatic conditions that the Tārīm basin may be supposed to have shared during geographically recent glacial periods would suffice to explain the existence of an early Stone Age settlement on this ground. In this connexion it deserves to be mentioned that the only other stone implement found in the desert south of the Yārkand river was a very well worked stone arrow-head (Pl. XXII),[12] unmistakably neolithic, which was picked up about half-way between the southern end of the Chōl-köl and Camp xxv on the previously described soft loess ground. Everything points to its being a relic of a more recent period.

Flakes from eroded rock formation.

Our march on October 31st revealed even more clearly the truly forbidding nature of the dunes to the south-east. Six formidable 'Dawāns', some rising to fully 300 feet above the intervening valleys (Fig. 83), had to be crossed in succession, and excepting a few little patches of clay emerging in one or two of them (Fig. 89), the valley beds were themselves smothered with heaped-up dunes. Only one peculiar feature, but that a very interesting one, brought a change into the distressing uniformity of this formidable sea of sand. In the valleys on either side of the third 'Dawān' from Camp xxvii the lower slopes of the dunes and the depressions between them showed for the most part a dark red surface, due to small but easily recognizable flakes of a calcareous sandstone such as prevails in most of the desert hills east of Marāl-bāshi. The surface layer of the sandy glacis at the north-east foot of the Kum-tāgh had presented exactly the same appearance, as previously mentioned,[13] though there the denudation products of the same rock material had not yet been reduced to an equal degree of fineness. It appears to me scarcely open to doubt that the ground we were here passing marked the position of a hill fragment, wholly submerged in drift-sand, forming part of the ancient wind-eroded range that once extended right through to the Khotan Mazār-tāgh or beyond. Reference to the map (Nos. 8. c. 2; 13. b. 4) will show that the rock island here assumed to underlie the dunes falls almost exactly in the direction of a line drawn from the Kum-tāgh towards the Mazār-tāgh on the Khotan river and only about two and a half miles west of a line connecting the latter point with the central crest of the Chok-tāgh and the highest portion of the Marāl-bāshi Mazār-tāgh.[14]

Trials of march to C. xxviii.

The constant climbs and descents over huge dunes tried the camels on that day's march so severely, that of the hired animals intended to act as the 'supporting party' two had completely broken down, and the rest had been brought along only with great trouble; yet their loads had been much lightened at the last camp by letting all camels have a good drink and half of the three

[11] Some attention may be paid in this connexion to what Dr. Hassenstein's map attached to *Reisen in Z.-A.* shows as to the position of the several small basins holding water derived from inundation that Dr. Hedin passed on his march in April, 1895, from Merket to Chok-tāgh. Some of these are placed there as much as 17 miles south of the present bed of the Yārkand river. It must, however, be pointed out that, as a comparison of that map and our Sheet No. 8 shows, the distance between Mazār-tāgh and Chok-tāgh is there distinctly over-estimated by something like 10 miles. A corresponding reduction would bring those small basins or pools considerably nearer to the river.

[12] See C. xxv. 02 in the List below.

[13] Cf. above, p. 83.

[14] I need scarcely point out that no high degree of accuracy is claimed here for the geographical determination of the respective positions as shown in the map. But the latitude of the Mazār-tāgh end on the Khotan river is fixed by astronomical observation and that of the Marāl-bāshi Mazār-tāgh, though less accurately, by concordant results of route traverses from Kāshgar, Ak-su, and Yārkand. The latter test applies, of course, also to the longitude of the Marāl-bāshi Mazār-tāgh, the longitudes of Kāshgar and Yārkand being known with a close approach to precision through previous surveys and observations. The longitude shown for the Khotan Mazār-tāgh likewise cannot be far 'out', as it is based on the longitude of Khotan, which itself has been determined within fairly exact limits by our triangulation of 1900.

I may add here that our plane-table traverse through the desert could fortunately be checked, as far as the bearing was concerned, by single rays from Chok-tāgh, which was visible at most of our fixings right up to Camp xxviii.



87. DUNES AND LAST TAMARISK SCRUB BEYOND CAMP XXVI, TAKLAMAKĀN.



88. PATCH OF ERODED CLAY AT CAMP XXVII, TAKLAMAKĀN.



89. DUNES AND ERODED CLAY IN VALLEY BETWEEN SAND 'DAWĀNS', NEAR CAMP XXVII, TAKLAMAKĀN.



90. HIGH SAND RIDGES SEEN EASTWARDS FROM CAMP XXVIII, TAKLAMAKĀN.

loads of fodder (dry lucerne grass) we had brought so far. It was clear that we could not count further on their help. But more disquieting still was the fact that in the course of a ten hours' tramp extending over eleven miles as measured by the cyclometer we had not succeeded in covering more than a little over seven miles of direct distance. The point where we came to a halt that evening, on the top of a broad high dune, could not be appreciably less than a hundred miles in a straight line to the Khotan river where the Mazār-tāgh strikes it. Assuming that our camels would be able to maintain this day's rate of progress, about which both Hassan Ākhūn and myself felt grave doubt, it would have cost us another fortnight's struggle before we could reach water and grazing. In view of Dr. Hedin's experience farther north and of what Kāsim Ākhūn reported about the sand formations around the Khotan Mazār-tāgh, there was little hope of gaining easier ground until we reached that hill range itself. And worst of all, there was no assurance that, however carefully our bearings might be taken, the route followed would actually allow us to sight that conjectured north-western extension of the low hill range which I was anxious to trace in the Taklamakān; for previous experience had taught me only too well the impossibility of steering an exact course amidst high sands by the compass.[15]

Vistas of sea of sand from C. xxviii.

So there followed for me a night of anxious consideration. I realized that the effort to force our way across the forbidding obstacles created by Dawāns and dunes could not be persisted in without facing heavy losses in animals and equipment. The risk of serious delay as a result of such losses weighed even more heavily in the scale, while the chance of securing in return fresh topographical observations of interest was far too problematic to balance it. Reluctant however to abandon a cherished plan, I left my decision till next morning. Ascending then the highest dune near our camp and carefully scanning the horizon eastwards with my glasses I saw nothing but the same expanse of formidable sand ridges, which resembled the huge waves of an angry ocean suddenly arrested in movement (Fig. 90). Closely packed dunes stretched over and between them without anywhere a patch of eroded ground or easier sand. The deceptive appearance of hills that refraction gave for a brief time to distant sand ridges vanished as the sun rose well above the horizon.

Decision to turn to Yārkand R.

There was a strange allurement in this vista, which suggested Nature suddenly caught in a death torpor, and I found it hard to resist it. We men might have safely struggled through in the end, but only at the cost of sacrificing some or most of our brave camels, the mainstay of our transport for the difficult explorations of the winter, and of hampering our work by loss of time and equipment. To make our way due east to the Khotan river might have meant a reduction of difficulties and distance, as we should then have kept parallel to the Dawāns, at least for a portion of the way. But such a route would have led over ground already seen by Dr. Hedin and could offer no appreciable advantage. So there remained no choice but to turn and reach the Khotan Mazār-tāgh by way of the Yārkand river. It was a hard decision to take, and the knowledge that the little band of hardy men with me would have willingly shared what risks and adventures lay ahead did not help to lighten it. But experience proved the wisdom of having bowed to necessity in time; for the next day but one there sprang up a violent sandstorm, the first of the autumn, most trying by its bitter cold even where fuel was abundant. Its icy blasts continued for days, and if met with amidst the high sands would greatly have impeded our movement and caused serious suffering; a single camel load of fuel was all we had been able to take along.

Conditions for future crossing.

In view of the geographical interests indicated, I still feel convinced that an effort should be made to trace the ancient wind-eroded hill range right through the sea of sand that at present separates the Chok-tāgh from the Mazār-tāgh on the Khotan river. But I now realize more than

[15] Cf. e.g. *Desert Cathay*, i. p. 425, regarding the crossing from the Lou-lan Site to the Tārīm.

ever that the attempt, if it is to succeed—on foot, of course, not by aeroplane—will have to be made from the latter point. For the traveller starting from the Khotan river, the foot of the Mazār-tāgh would afford relatively easy going for the first twenty miles, if not farther. Slight as the elevation of the Khotan Mazār-tāgh is, as far as Lāl Singh reconnoitred it in 1908, it would yet give a fair chance of sighting any isolated rock islands which might be found to continue its direction farther on. After crossing some further sixty miles of difficult ground, the crest of the Chok-tāgh would be sighted and offer safe guidance for the rest of the desert crossing. January or February would probably be the best season for good visibility as well as for the transport of water in the form of ice.

Survival of desert range on Khotan river.

And here I may in conclusion offer a few conjectural observations of geological interest. It is evidently deserving of notice that the north-west and the south-east ends of the ancient hill range that may be assumed to have once diagonally crossed the great basin now covered by the sands of the Taklamakān, both survive in the immediate vicinity of large rivers. The fact cannot be due to mere chance, and its explanation is not far to seek. It is clear that the large river beds, and still more the broad belts of vegetation that moisture must always have maintained along them, would inevitably make the accumulations of drift-sand less heavy, and consequently their corrosive effect when in movement less great, on that side which, in respect of the prevailing wind direction, would lie under the lee of the river beds. Now all the surface features due to wind-erosion that I have observed, from the Lop desert to the fragments of the old transverse range about Marāl-bāshi, conclusively prove the prevailing direction of the winds at work in the Tārīm basin to have always lain from NE. or ENE. to SW. or WSW. Keeping this fact in view, it is easy to realize from the map that the Khotan river flowing approximately from south to north could afford that protection only to such portions of the old hill range as lay near to the west of it. Thus the survival of the Mazār-tāgh, to a distance as actually traced of some fourteen miles from the river's left bank, is fully accounted for.

Protection afforded by riverine belts.

Turning to the area where the range is adjoined by the Yārkand river we find conditions somewhat different. Here the general bearing of the river's course is approximately from S. 243° W. to N. 63° E., or roughly WSW. to ENE., and thus approximately the same as the prevailing wind direction. If account is taken of the width of the riverine belts of vegetation—and owing to the close vicinity of the Kāshgar river delta it is particularly great on the left or northern bank of the Yārkand river—it is evident that the hills near either side of the Yārkand-daryā must receive some protection from corroding drift-sand; but this would necessarily be more effective on the left bank, where the vegetation belt is greatly increased by the added moisture from the end of the Kāshgar river. The map shows us topographical facts in close agreement with this theoretical assumption; the high and relatively broad massif of the Marāl-bāshi Mazār-tāgh lies near the left bank, and the distinctly lower and more attenuated ridges of Chok-tāgh and Kum-tāgh lie on the right. It is further fully in keeping with the above theory that we find the detached ridges to the north and north-east of the Marāl-bāshi Mazār-tāgh sinking lower and lower the farther away they lie from the protection of the riverine belts of the Kāshgar-daryā. Thus the Bēl-tāgh is distinctly lower and more eroded than the Ōkur-mazār-tāgh of which it is a prolongation (Map No. 8. A, B. 1), and the Lāl-tāgh lower than the hills near Tumshuk. A probable explanation is thus found for the almost total effacement of the ancient range where its line approaches at right angles the outermost T'ien-shan or Kelpin-tāgh, presumably of geologically later origin; here the small Shikarwai knoll (Map No. 8. A. 1) appears to form its only remnant.

Persistence of factors affecting desert formations.

These observations are offered with all the reserve which my want of systematic geological training necessarily imposes. But it may at least be claimed for them that they are consistent with that method, the application of which, as a safe guide to the genetic history of present desert

formations, has been convincingly proved by the researches of Professor J. Walther.[16] The conditions which are at present progressively wearing down that ancient range across the Taklamakān are likely to have been determining factors all through those ages which have seen it in course of being broken up and reduced to its present insignificant dimensions. Variations of climate may have retarded or accelerated the process; but in its essential features it must always have been the same, ever since the Tārīm basin became what it is, a huge drainage-less area cut off from connexion with the ocean.

Hill above termination of Niya river.

The explanation here conjecturally proposed helps us to trace a likely continuation of the ancient range to the south-east, much farther away than the Mazār-tāgh on the Khotan river. I have noted elsewhere that the Mazār of Imām Ja'far Sādiq, the famous pilgrimage place at the termination of the Niya river, rises on a low isolated hill surrounded on all sides by dunes.[17] This hill, or rather flat-topped ridge, is covered with stony detritus overlying reefs of rock-salt. I regret not to have brought away any specimen of the decomposed rock, and that the geological formation of the ridge remains for the present uncertain. But reference to the general map of *Serindia* shows that this denuded rock island lies almost exactly in the direct continuation to the south-east of the line passing through the Bēl-tāgh and Ōkur-mazār-tāgh, and only a little to the north of the line connecting the Mazār-tāgh of Marāl-bāshi with the Mazār-tāgh on the Khotan river. May we not have here the final isolated remnant of the same ancient hill-range striking across the Taklamakān, and completely decayed in this last portion?

The analogy presented by the survival of the two Mazār-tāghs and of the Imām Ja'far Sādiq hill, in each case above the west bank of a large river course, suggests the further query whether remains of the same ancient range may not be traceable also in a corresponding position west of the Keriya river, say between Chāl-ōghil and Yoghan-kum (Map No. 13. D. 4). I regret not to have looked out for such traces when moving along this portion of the course of the Keriya river in 1901 and 1908. But I should not feel surprised if the exceptionally high sands, appropriately called *Yoghan-kum*, were found to overlie some decayed hill formation. This would account also for the delta of the dying Keriya river having its head just at Yoghan-kum.[18]

LIST OF OBJECTS FOUND IN DESERT SOUTH-EAST OF CHOK-TĀGH

C. xxv. 02. **Stone point (arrow-head),** Neolithic; very delicately tapered and rather finely worked. Rhombic section flattened at broad end for junction with shaft. Dark grey chert, superficially disintegrated in places. Found on surface of dusty soil, c. 4 miles SE. of C. xxv. Length 2$\frac{5}{8}$", width at base $\frac{9}{16}$", gr. thickness $\frac{3}{16}$". Pl. XXII.

C. xxv. 03. **Flint (?) point;** curved, retouched on one edge. Dark horn colour, semi-transparent. Broken at base. Same provenance as preceding. Length 1$\frac{5}{16}$", gr. width $\frac{7}{16}$", gr. thickness $\frac{3}{16}$".

C. xxvii (E. of). 01. **Chert core,** conical, showing long narrow surfaces of fracture. Base $\frac{5}{8}$" diam., h. $\frac{3}{4}$".

C. xxvii (E. of). 02–3. **Two frs. of worked stone;** brown to grey, showing bulb of percussion. Gr. M. 1$\frac{3}{16}$".

C. xxvii (E. of). 04. **Fr. of worked stone.** Roughly cuboid, one side slightly pointed and showing conchoidal touches. Opposite side broken. $\frac{7}{8}$" × $\frac{5}{8}$" × $\frac{1}{2}$".

C. xxvii (E. of). 05. **Fr. of chert core,** reddish yellow, from which long narrow flakes have been struck. One side unworked. Length $\frac{7}{8}$", thickness $\frac{3}{8}$".

C. xxvii (E. of). 06. **Fr. of stone,** hard, grey-brown; granular fracture, as C. xxvii. 019. Roughly worked. Edges very sharp and clean. Irregular triangular shape. 2$\frac{1}{4}$ × 1" × 1$\frac{1}{8}$".

C. xxvii (E. of). 07. **Fr. of stone;** hard, grey, shaped like lower end of scabbard, perhaps part of hone. Rounded at one end. 3$\frac{1}{4}$" × 1" × $\frac{3}{8}$" tapering to $\frac{1}{4}$".

C. xxvii (E. of). 08. **Fr. of stone;** hard, greyish-brown, granular fracture as 015, &c., showing bulb of percussion. 1$\frac{3}{8}$" × 1$\frac{1}{8}$" × $\frac{1}{2}$".

C. xxvii (E. of). 09. **Shells** found on dune 3 miles E. of C. xxvii. Probably Limneidae; cf. C. xciii. 02–9. Gr. M. $\frac{3}{16}$".

[16] See his classical work, *Das Gesetz der Wüstenbildung*, pp. 6, 32 sq., and *passim*.

[17] Cf. *Ancient Khotan*, i. pp. 313 sq.

[18] See *Desert Cathay*, ii. p. 410.

C. xxvii (E. of). 010. Frs. of fossilized vegetable matter. Fr. of shell (Limneidae ?) and egg-shell. Gr. M. *c.* 1".

C. xxvii. 011. Stone flake; hard, black as 015, &c.; scraper (?). Gr. M. 2".

C. xxvii. 015, 016. Two frs. of worked stone; irregular shape and rough. Black, with fine granular fracture. Gr. fr. 2⅜" × 1⅝" × 9/16". Smaller fr. ¾" × 13/16" × 7/16".

C. xxvii. 017. Fr. of worked stone; black flint (?); irregular lump. Gr. M. 13/16".

C. xxvii. 018. Pebble, water-worn and sand-corroded; mottled grey and cream; has appearance of partially disintegrated gneiss. 1" × ⅞" × 5/16".

C. xxvii. 019. Fr. of worked (?) stone; pinkish brown; granular fracture, as C. xxvii (E. of). 06. Irregular shape. Gr. M. 1¾".

C. xxvii. 020. Fr. of stone; fine, hard, black; granular fracture, as 015, &c. Irregular shape (accidentally broken ?). Gr. M. 1 7/16".

C. xxvii. 021–7. Seven frs. of worked stone; horn-colour to red. Irregular shape, some appearing to be accidentally broken rather than worked. 024 sand-worn. Gr. M. (*021*) 1⅜".

C. xxvii. 028–30. Three frs. of stone; hard, grey. 029 shows striated curved furrows on under (i. e. concave) side; 030 sand-worn on one side. Gr. fr. (*029*) 1 5/16" × (gr. width) ⅝".

C. xxvii. 031. Stone flake (blade); long narrow, yellowish grey, single-ribbed; two-edged. Ends also probably worked; fine granular fracture. 1 5/16" × 5/16" × 1/16".

C. xxvii. 032–3. Two stone flakes (frs. of blades), narrow; 032 with pyramidal ridge; 033 flat on lower surface which is longitudinally concave; single-edged; relatively broad back; both back and edge retouched. Bulk at upper end where flake is broad; tapering downwards and broken in narrowest part showing almost equilateral-triangular section. Deep brown flint; sand-worn. Cf. C. xxv. 03. 1" × 5/32" at broadest part.

C. xxvii. 034–5. Two stone flakes (frs. of blades), narrow; 034 hard black stone of fine grain, with double ridge. ⅞" × 5/16"; 035 horn-coloured flint, semi-transparent, slightly curved. 11/16" × ⅜".

C. xxvii. 036–7. Two frs. of stone flakes; black and red flint (?) resp. Indeterminate. Gr. M. ⅝".

C. xxvii. 038–40. Three frs. of worked stone; hard, black, of fine grain, as 08, 011, 015, &c. 039 shows bulb of percussion; 040 roughly crescent-shaped, with broad rough back opposite edge. Gr. fr. (*040*) 1¾" × ⅞" × 5/16".

Section IV.—PAST THE MAZĀR-TĀGH OF KHOTAN

Return to Yārkand river.

Baulked in my attempt to strike for the Khotan Mazār-tāgh straight through the Taklamakān, I decided to reach it by the nearest practicable route along the Yārkand and Khotan rivers. By the third day of our return march from amidst those formidable sand 'Dawāns' we had gained the east flank of the Chok-tāgh, where fortunately a bare stony 'Sai', intervening between the foot of the rugged hills and a huge ridge of sand on the east, offered easy going. It was doubly welcome in the blizzard that had met us just as we got clear of the dunes. Crossing thence a last offshoot of the Chok-tāgh, we gained the Yārkand river (Fig. 79) near a water-mill visited by people of Chigan-chöl, a large village in the direction of Tumshuk. There we forded the river, and after a long day's tramp through the luxuriant riverine jungle of the left bank were so lucky as to secure ponies from grazing grounds of Chigan-chöl. They enabled me to push ahead of our camel caravan, with which I left the Surveyor, and by four rapid marches (November 5–8), through hitherto unsurveyed jungle tracts, to reach the extreme south-western edge of the cultivated zone of Ak-su.

Marches through riverine jungle belt.

The first three marches from Tushkan-chöl, C. xxxi, led through portions of the wide jungle belt that follows the Yārkand river (Maps 8. c. 1; 7. c, d. 1), in which tracts of forest abounded, living and composed mostly of wild poplars. The track we followed, not without difficulty owing to inadequate guidance, approached the vicinity of the winding main river-bed only in a few places. But water was obtained at our camping places near Kapa-jainak and Kelpin-satma from a large bed known as Ārpa-akin, which during the summer floods receives the surplus of the waters discharged by the Yārkand river into the great marsh area south of Tumshuk. This bed reunites with the main Yārkand river above the conspicuous sand hillock known as Acha-dong (Map No. 7.

D. 4). At a point called Kizil-ziārat (Map No. 8. C. 1) we passed a small area of cultivation recently opened by a few Dolān families from the Ābād tract of Ak-su, and flocks of sheep belonging to Ak-su 'Bais' were found grazing even higher up the river.

Journey to Ghōra-chōl.

Beyond Acha-dong living Toghraks became rare, and much dead forest and dead tamarisk-cones (Fig. 84) showed that this area had for a long time past ceased to receive water from the river, though a maze of dry beds evidently connected with it was passed here.[1] Towards the end of a thirty-one miles' march over desolate waterless ground, living vegetation became again more frequent, until at last at Palās-yepti we reached a marshy bed holding a sluggish stream. It was said to receive its water from the Kara-köl branch of the dying Kāshgar river, and the survey effected a year and a half later along the Ak-su–Tumshuk high road (Map No. 7. C. 4) has shown reason to believe that this bed represents, indeed, the final termination of the Kāshgar-daryā.[2] Making thence our way to the NE., past patches of abandoned cultivation and marshes, we reached on the morning of November 9th the extensive but poorly cultivated village tract known as Ghōra-chōl. It forms the southernmost portion of the Ābād canton belonging to the district of Ak-su (Map No. 12. A. 4) and receives its irrigation from the Ak-su river. Settled by indolent Dolāns who have only in modern times taken to agricultural life,[3] the tract offered but scanty resources. My arrival not having been foreseen and arranged for at district head-quarters, it was only with considerable difficulty that I secured the half-dozen ponies that were needed to enable me to push up the Khotan river by forced marches.

New terminal course of Khotan river.

Fortunately a great change in the Khotan river's terminal course, that had taken place since my passage in 1908, helped us considerably in shortening this journey. From a point known as Yalghuz-kum the river had turned off to the north-west into what before was probably an old dry bed of its delta (Map No. 13. A, B. 1). This opportune change allowed us on November 11th to strike straight across to the SSE. of Ghōra-chōl and to reach the Khotan river end by a single march, instead of having to make the great detour towards the old route at the junction of the Ak-su and Yārkand rivers (Map No. 12. A. 4). Crossing the latter at Kochatlik, where we found a ferry installed,[4] we moved for about ten miles across a tamarisk-covered steppe. There numerous dry beds lined with living Toghraks clearly showed by their direction that they had once carried water derived from the Yārkand river. Some six miles beyond we passed deep 'Yārs' recently cut by the Khotan river floods, and then arrived at the new bed, nearly a mile wide but quite dry. Water, however, was easily found, as elsewhere along the lower Khotan river, by digging a well under the steep bank of the bed. Next day a march of some twenty-eight miles along the new river-bed, itself repeatedly split up into several branches in true delta fashion, brought us to the point known as Yalghuz-kum, where it diverged from the old bed as surveyed in 1908 (Map No. 13. B. 1). Most of the ground traversed by the new river-bed showed but scanty scrub, and beds of reeds had begun to grow up only near its head. This confirmed the experience gained in 1908

[1] The indication of living trees and tamarisk-cones along the route followed to the north-east of Acha-kuduk (Map No. 7. D. 4), as taken from Surveyor Muhammad Yāqūb's plane-table, is misleading and ought to have been corrected.

[2] It is possible that the Ghōra-akin (or Gōre-akin), a now completely dry terminal branch of the Kāshgar-daryā that I noted in 1908 north of Tumshuk (cf. *Serindia*, iii, p. 1309), and again in 1913 south of Yaide (Map No. 7. C. 4), may also at one time have reached the Yārkand river belt in this vicinity.

Perhaps the name *Ghōra-chōl* borne by the recently colonized ground in the extreme south of the Ābād tract of Ak-su may have some connexion with it.

[3] Cf. *Serindia*, iii. p. 1296. Ghōra-chōl was said to have been settled under Chinese orders in 1877, on the reconquest of the 'New Dominion'. The abandoned cultivation I had noticed at Sailat-terek on my way from the Kara-köl termination was ascribed to an attempt at colonization made about a century ago.

[4] We found here water flowing in a channel, about 75 feet wide and 5½ feet deep in the middle, with a velocity of 1·7 foot per second.

on our desert crossing to the Keriya river end, as to the slowness with which vegetation follows such deltaic changes.[5]

Journey up Khotan river-bed.

Leaving Yalghuz-kum, where to my surprise I had found a small 'terelgha' recently opened by a few shepherds of Ābād, we followed the route up the Khotan river-bed that I had previously taken in 1908. Our fresh survey showed that the bed of the river, up to two miles wide in places, had changed here but little. The distance to the Mazār-tāgh was covered in four long marches. These were made rather trying by the bitter cold, as much as 34 degrees Fahr. below freezing-point combined with a cutting wind and a grey dust-laden sky. On nearing Dārun-satma, where we camped on November 16th, the bold river end of the Mazār-tāgh, though rising only some 220 feet above the wide sandy bed, was already well in view. Three small hills, seemingly detached, which were sighted rising above the big dunes to the south-west, evidently form part of the Mazār-tāgh ridge where it continues into the Taklamakān. One of them was said by Kāsim to be visited by people of Islāmābād and Tawakkēl for the sake of flints embedded in the rock.

Objects from refuse of Mazār-tāgh ruins.

November 17th was devoted to a fresh examination of the ruins on the top of the Mazār-tāgh, which had been previously explored in 1908 and are described and illustrated in *Serindia*.[6] I had not been surprised to learn from Kāsim Ākhūn, when he rejoined me at Kāshgar, that since my former visit 'treasure-seekers' from his native village of Islāmābād had resumed their burrowing around the ruined fort. They had not found the precious things they hoped for, but only small remains of implements, &c., such as I had recovered in plenty from the debris within the small fort and still more from the extensive refuse layers outside it. The specimens of their finds which Kāsim Ākhūn had brought me, and which the List below specifies,[7] left me in no doubt that they were in general of same origin and date as those yielded by my clearings of 1908. They comprised *inter alia* plenty of wooden slips with Tibetan writing; small pieces of paper with Tibetan, Brāhmī, Uigur writing; fragments of a wooden bow and arrow-shafts (M. Tāgh. 03, 046–8); pottery stamps (026, 031, 049); horn and wooden combs (039–40, 041–2) and key (044); miscellaneous wooden implements (021–4, 027, 032); string shoes (04–6), &c., as shown by the specimens in Pl. V, VI. But in addition to these relics, which obviously originated, like my far more numerous and exactly similar finds of 1908, from the rubbish left behind by those who garrisoned the fort in T'ang times, there were a few small objects, like the votive stucco plaques, showing a seated Buddha (07–10, 028) and miniature clay Stūpa (050), that pointed to some ruined shrine. And it was just the remains of such a place of Buddhist worship that on my former visit I had failed to trace—to my disappointment at the time, I may add. For the very name Mazār-tāgh and the existence on the eastern edge of the hill of what were supposed to be tombs of Muhammadan saints had made me look out for such remains, in view of the continuity of older local worship so constantly proved at such sites.

Refuse layers under NW. wall of fort.

In accordance with arrangements made from Marāl-bāshi, Muḥammad Bēg, the intelligent local head of Islāmābād, with a small number of diggers from the same place, had patiently awaited my arrival at Mazār-tāgh. Going with them over the ruins I soon found that the miscellaneous small relics first mentioned had come to light from refuse layers, much less extensive than those I had cleared in 1908, but exactly of the same origin, which Islāmābād men had come upon under the north-western walls of the fort and its outer court. Small rock fragments and pebbles carried up by the prevailing winds had covered the slope and previously hidden this rubbish from view.

[5] Cf. *Desert Cathay*, ii. pp. 406 sqq.

[6] See *Serindia*, iii. pp. 1285 sqq.; Figs. 329–31, 335; Pl. 59.

[7] A few pieces of exactly similar character were subsequently received by me from Badruddīn Khān, the Khotan Ak-sakāl, who had acquired them from 'treasure-seekers'.

[The hoped-for inventory of the Tibetan documents has not yet been received.]

Extensive burrowing in another place had yielded no 'finds' whatever, but was nevertheless of some interest. I had ascertained in 1908 that the large outer court of the fort must have been used for stabling. The obvious evidence of this, thick layers of manure, had not prevented Tokhta Ākhūn, the chief 'Taklamakānchi' of Islāmābād and a queer person of the true 'treasure-seeking' type (Fig. 86), from digging a trench 6 feet wide and fully 10 feet deep along the inner side of the NE. wall enclosing this court. This labour, performed with all the perseverance of an *âme damnée*, had resulted only in laying bare the depth of the accumulations of horse-dung, but not without some profit in the way of archaeological evidence. It showed me that the outer enclosure wall, standing to a present height of 6 feet and about 4 feet thick, had been built over a solid layer of stable refuse already over 4 feet deep at the time. This clearly points to prolonged occupation of the hill crest at this place before the extant Tibetan fort was built.[8] At the same time Tokhta Ākhūn's burrowing furnished me with an explanation of certain signs that had previously puzzled me. In the court I had noticed marks of what seemed to have been a big conflagration. Yet of destruction by fire I had failed to trace any evidence within the fort. Kāsim Ākhūn now explained that the charred condition of the lower masses of manure was due to a slow process of burning, such as he had often observed at the manure heaps of 'Ōghils' or herdsmen's stations. It was obviously due to this process that the walls of the court owed the burnt appearance of their brickwork. Charred masses of manure in outer court.

A more interesting discovery, however, rewarded my examination of the steep and very narrow rocky spur with which the hill falls off eastwards to the river bank. In 1908 I had failed to visit the stacks of beflagged poles that here mark the 'Mazār' of some alleged Muhammadan saints, about 50 yards from the fort and about 100 feet below its level (Pl. 3). It was only now that I noticed some old pieces of timber used for the rough enclosures of two of these stacks. As I looked for the spot from which they might have been taken, my attention was caught by a small and very low heap of debris on a little shelf of the slope below and about 68 feet from the Mazār (Fig. 91). The uniform surface of decayed sandstone debris with which it was covered like the hill slope around, had here hidden the badly eroded wall foundations of a small temple cella and its enclosing passage. The surviving remains of beams and of tamarisk sticks set in rows, which a careful clearing revealed, left no doubt that the small structure had been built in timber and wattle exactly after the manner of the shrines first excavated by me at Dandān-oilik and later at Khādalik and elsewhere in the Khotan region. That the scanty remains were those of a Buddhist shrine became quite certain when the clearing brought to light well-carved wooden finials (M. Tāgh. c. 06-8, Pl. VI) of the same type as those found at Khādalik,[9] and pieces of hard-faced fibrous plaster, originally laid over a canvas backing, which manifestly had belonged to stucco relievos (M. Tāgh. c. 01-4). Tiny fragments of painted stucco, evidently from frescoed walls, could also be picked up in the debris. A badly weathered piece of wood, probably from a piece of panelling (M. Tāgh. c. i. 01, Pl. VI), showed elaborate ornamental carving of a style found elsewhere at Khotan sites. Remains of ruined shrine.

The dimensions of the cella, 13′ 8″ by 11′ 2″, could be traced by means of the foundation beams still *in situ*, and, outside it on the east, the wall of an outer passage 5′ 6″ wide (Pl. 3). Here remains of stuccoed image bases, one of semi-circular shape between two rectangular ones, each about two feet across, were still distinguishable. The structural remains must have suffered badly from wind-erosion and been reduced to insignificant dimensions long before my visit in 1908. But there is good reason to believe that their final destruction was the result of subsequent treasure-seeking operations.[1] From these came in all probability the above-mentioned votive plaques showing a seated Buddha (M. Tāgh. 07-10, 028) and other small relics (M. Tāgh. 020, 050) that Kāsim Relics from ruined cella.

[8] Cf. *Serindia*, iii. p. 1291, for a suggestion concerning the watch-tower above the fort, which may possibly be of earlier date.

[9] See *Serindia*, i. p. 194, Kha. viii. 002 (Pl. XVII).

Akhūn had brought me. Scanty as were the remains traceable on the spot, they amply suffice to prove that it had been occupied by a Buddhist shrine, evidently of the period (eighth to ninth century) when the ruined fort was last tenanted by Tibetans. But the main interest of the remains rests on the fact that they provide direct archaeological evidence of continuity of local worship having here too, as so often elsewhere in Central Asia, turned a place of Buddhist cult into a Muhammadan 'Mazār'.[10]

Geological character of Mazār-tāgh hill range.

Here I may conveniently add that the strike of the reddish strata, mainly marl and alabaster, composing the hill range, which, as Fig. 92 shows, have been laid bare very clearly by wind-erosion on the hill crest close to the ruined fort, was found to be exactly from SE. to NW., with a dip of 20° to the SW.; this agrees very closely with the direction of similar strata observed in the hills north-east of Marāl-bāshi.[11] That the general bearing of the Khotan Mazār-tāgh points clearly to its genetic connexion with the former hill range has already been indicated.[12] The appearance of the disintegrated rock flakes covering the Mazār-tāgh slopes closely recalled the fine red detritus observed at the foot of the Kum-tāgh and again on our third desert march south-east of the Chok-tāgh.

Move to Khotan town.

I had to abandon my intention of surveying the Mazār-tāgh range farther into the desert north-westwards than had been possible in 1908, owing to the heavy strain that the long series of preceding forced marches had put upon our camels and men. Nor could I allow them a preliminary rest here without a loss of time of which the programme of the winter's explorations far away to the east did not permit. So I let Surveyor Muḥammad Yāqūb with the camels move by easy stages behind me along the route, not previously mapped, that leads from the junction of the Kara-kāsh and Yurung-kāsh along the former river to Kara-kāsh town (Map 14. A. 1). I myself hastened ahead to Khotan by the direct route that I had followed in 1908, and covered the distance of close on 120 miles in four days. Passing through the outlying oases of Islāmābād and Tawakkēl, I had occasion to note a considerable extension of the cultivated area, with a correspondingly large increase of the population, since my visits of 1900 and 1908.[13]

Ruins east of Yurung-kāsh R.

From Islāmābād I detached Afrāz-gul Khān to examine ruins reported in the desert east of the Yurung-kāsh river. His survey proved them to be identical with those of the Rawak and Jumbe-kum sites already explored by me in 1901.[14] But near the Rawak Vihāra the dunes had since shifted in position and now disclosed, about 60 yards to the NE. of that great ruin, the remains of a previously unsurveyed structure, about 48 feet square, probably also a temple. Unfortunately its walls were found eroded almost to the ground, and no close determination was possible. On November 21st I regained my old haunts at Khotan, and there, to my pleasant surprise, found Sir George Macartney just arrived on an official tour from Kāshgar.

OBJECTS BROUGHT BY KĀSIM AKHŪN AND OTHERS FROM MAZĀR-TĀGH

M. Tāgh. 01. Length of hemp rope, in good condition. Knot at one end. Length 4′ 8″, diam. ½″.

M. Tāgh. 03. End of wooden bow; hard wood. Towards centre, flattened and spliced to strong band of animal fibre, prob. a large tendon. Splice bound with fine fibre and covered with black pigment. Posterior aspect of bow flattened; anterior, rounded keel-shaped. End flattened laterally and notched for bow-string. Extremely well made; cf. *Serindia*, iv. Pl. LI, M. Tāgh. a. 0017. Length 1′ 9″, width at centre 1¼″. Pl. VI.

[10] For references, see *Ancient Khotan*, i. p. 611, *s.v.* local worship; *Serindia*, iii. p. 1546; *J.R.A.S.*, 1910, pp. 839 sqq.

[11] Cf. Hedin, *Reisen in Z.-A.*, pp. 221, 223.

[12] See above, p. 81 sq., 88 sq.

[13] In 1900 Tawakkēl, together with Islāmābād, was reckoned at 1,000 households; cf. *Ancient Khotan*, i. p. 132. Now 1,700 houses were counted at Tawakkēl and 300 more at Islāmābād. This oasis, along with Yangi-arik farther south, also much grown, had been formed into a separate Bēg-ship (*minglik*).

[14] Cf. *Ancient Khotan*, i. pp. 483 sqq., 502.



91. DEBRIS HEAP MARKING RUINED SHRINE BELOW MAZĀR-TĀGH FORT.



92. CREST OF MAZĀR-TĀGH HILL CHAIN, LOOKING NORTH-WEST FROM RUINED FORT.



93. DEAD POPLARS AND SAND-BURIED STRUCTURE, N. XLIV, NIYA SITE.



94. RUINED DWELLING, N. XLIII, NIYA SITE, BETWEEN TAMARISK-CONES, BEFORE EXCAVATION.



95. FORT ON MAZĀR-TĀGH HILL, SEEN FROM NORTH-WEST.
(See p. [illegible])



96. SITE OF RUINED SHRINE BELOW TAMARISK-CONES, KUDUK-KÖL.

M. Tāgh. 04–6. Three string shoes with open-work sides. Similar to *Ser.* iv, Pl. XXXVII, L. A. vi. ii. 0025, but finer workmanship. Much worn and ragged. Wrapped in piece of canvas. *04*, 10″ × 4″. *05*, 7¼″ × 3½″. *06*, 7¾″ × 3¼″. See Pl. VI.

M. Tāgh. 07–8. Two votive stucco plaques, in red clay, from same mould. Seated Buddha on lotus in pose of meditation, surrounded by pear-shape halo of pearls within flames. Very roughly done. For similar plaques see Yo. 0137, Pl. III; also M. Tāgh. 09–10, 028. 3¼″ × 2″.

M. Tāgh. 09–10. Frs. of three stucco plaques similar to M. Tāgh. 07, but from different mould. 3½″ × 2¼″.

M. Tāgh. 011. Conical wooden float (?) or shuttle, or handle for closing snare. Hole drilled through thick end. Through hole passes string, knotted at one end to prevent slipping; other end knotted in loop. Groove round thinner end of wood and hole in middle of same end running up into interior. Length 2¼″, diam. ⅞″ to 1⁵⁄₁₆″. Pl. VI.

M. Tāgh. 012–13. Two frs. of string netting, of about 1″ mesh, made of various thicknesses of string.

M. Tāgh. 014. Two thin woollen cords and one of dark brown goat's hair, knotted in fashion of rosary. 015 pale blue wool. Lengths 1′ 5¼″ and 3″.

M. Tāgh. 016–19. Bronze and stone frs., threaded on string.

016. White marble spinning whorl, broken at one side. Diam. ⅞″, h. ⅜″. Pl. VI.

017. Well-designed bronze buckle, elliptical *D*; the straight side formed of two parallel thin bars with ⅛″ space between, terminated at ends by projecting pieces from that side of the *D*. No tongue. Good work. H. 1⅜″, width 1⅛″. Pl. VI.

M. Tāgh. 020. Fr. of wooden border; oblong, convex on front, which is painted with simple scale imbrications in black outline. No colour remains. Both ends sawn or otherwise cut, and long edges cut. Back split off. Length 2⁷⁄₁₆″, width 1″, gr. thickness ⅜″.

M. Tāgh. 021. Small wooden cleat or handle of string used for twisting churn stick. Round, narrowing to each end; sunk channel in centre. Chisel-cut. Length 2¾″, diam. ¹¹⁄₁₆″. Pl. VI.

M. Tāgh. 022–3. Two wooden stopper-like objects, with broad flat heads, worn by cords at neck. Perhaps floats for fishing net. Gr. diam. 1⅛″, h. 1⅜″. Pl. VI.

M. Tāgh. 024. Wooden object like cricket ball; round, with incised annulets; slightly narrowed at one end; pointed knob with thin neck at other. Not turned; chisel-cut. Remains of pink paint or lacquer; black at blunt end. Perhaps handle of stamp. H. 3¾″, diam. ⅞″. Pl. VI.

M. Tāgh. 026. Circular pottery stamp. Heavy, roughly made, with projecting handle at back. Hard pink clay with thin pink glaze in parts. Pattern: pair of peacocks, adorsed, *regardant*, wings upraised, tails down, beaks almost touching; standing on lotus, surrounded by small pearls. Well designed. Diam. 2⅛″, h. 1⅞″. Pl. V.

M. Tāgh. 027. Wooden pear-shaped object, with neck near thin end, round which is tied a piece of string. Perhaps float for fishing net; cf. M. Tāgh. 022–3. 2⅛″ × 1⅜″ × 1⅛″. Pl. VI.

M. Tāgh. 028. Votive clay plaque, similar to M. Tāgh. 07. Broken (now joined). 3″ × 2¼″.

M. Tāgh. 029. Clay spinning-whorl; roughly spherical, burnt clay, pierced with large hole. Diam. ⅞″.

M. Tāgh. 030. Hard clay seal; dome-shaped at back, with one hole drilled through laterally, and another partly through from centre of back. Device on face: a scattered arrangement of signs roughly incised; bird, crosses, Svastika, &c. Diam. 1³⁄₁₆″, h. 1″. Pl. CXI.

M. Tāgh. 031. Hard clay mould of eight-petalled rosette. Prob. potter's mould. Diam. 2⅛″. Pl. V.

M. Tāgh. 032. Flat wooden spatula; spade-shaped, smooth from wear. Handle broken. 4⅝″ × ⅞″ × ⅛″. Pl. VI.

M. Tāgh. 033, 035–7. Four wooden writing-slips; whole or broken, blank. 033 and 035 join into one complete slip. All have hole drilled near one end. 033 and 035, 8⅞″ × ⅞″ × ⅛″.

M. Tāgh. 039. Portion of horn comb, similar to M. Tāgh. 040. 2⅛″ × 1⅞″ × ³⁄₁₆″. Pl. VI.

M. Tāgh. 040. Horn comb, with spreading ends and slightly arched back. Unusually long; teeth badly broken. Well made. 4⅛″ × 2⅛″ × ⅛″. Pl. VI.

M. Tāgh. 041–2. Frs. of two wooden combs, unusually narrow. General shape as M. Tāgh. 040. *041*, 1⅞″ × 1″ × ³⁄₁₆″. *042*, 2¹¹⁄₁₆″ × 1⅜″ × ⅛″. Pl. VI.

M. Tāgh. 043. Fr. of wood, with traces of brush-drawn lines in black. 2½″ × ⅞″ × ⅞″.

M. Tāgh. 044. Wooden key, with holes for five pegs of which two remain. Handle drilled for cord. Cf. *Ser.* iv, Pl. XVII, Kha. ix. 008 and v. 006, and full description of ancient wooden lock and key, *ibid.*, i. p. 191 sq. 4″ × ⅞″ × ⅜″. Pl. VI.

M. Tāgh. 045. Wooden object of unknown use. As seen from side, of long wedge shape, upper edge curved from broad end downwards. At under-side of broad end, rectang. piece cut away. Hole drilled through broad end, and a second 1½″ from other end. Lower edge flat, upper rounded. Length 4⅜″, gr. h. 1″, width ⁹⁄₁₆″. Pl. VI.

M. Tāgh. 046–8. Frs. of three wood or cane arrow-shafts, with whipping of gut. 046, reed; 047, wood (?); 048, cane, showing notch. Longest (*047*) 8⅝″, diam. ⅜″.

M. Tāgh. 049. Hard clay mould of rosette, composed of eight enclosed palmettes round circle of pearls, with inner circles of cable and pearl patterns. At outer edge, between palmettes, single pearls. Prob. potter's mould. Diam. 4⅜″. Pl. V.

M. Tāgh. 050. Cone of hard red clay; prob. miniature Stūpa, roughly made, with three bases. No detail. H. 3", diam. of base, 2⅜".

M. Tāgh. 051. Two frs. of hemp (?) string. Lengths 2' 11" and 1' 4".

M. Tāgh. 0635–7. Frs. of three wooden arrow-shafts, unlacquered (0637 cane). 0635 shows notched butt and remains of binding; other end broken off and charred. 0636 also shows remains of binding. Lengths 10 3/16", 10⅜", 9⅜"; gr. thickness ⅜". Pl. VI.

M. Tāgh. 0638. Fr. of wooden arrow-shafts, showing notched butt painted red, and remains of feathers and binding. Cf. *Ser.* iv. Pl. LI, M. Tāgh. b. 007–10, &c. Length 9 7/16", gr. thickness ⅜". Pl. VI.

M. Tāgh. 0639. Fr. of woollen fabric, fine buff, soft and evenly woven. Several frs. sewn together, double. Perhaps corner of padded garment. Much torn. 1' 5" × 1'.

M. Tāgh. 0640. Wooden stamp; flat, square, with slanting string-hole pierced through edge at two opposite sides.

Device (in cavetto): a square in outline, with diagonals crossing and leaving four raised triangles. In centre of each of these again is small sunk triangle, the apex in one pair pointing in same direction as apex of raised triangle; in other towards its base.

Good condition; back worn. With it, shreds of twisted fibre string, two thicknesses. 2¼" × 2⅛" × *c.* ⅜". Pl. VI.

M. Tāgh. 0641–3. Three wooden dice, cubical; 0641 and 0642 have numbers marked by small ink circles, 0643 by drilled depressions ⅛" in diam., made with fine centre-bit.

System of numbering irregular, 0641 having 1 opposite 3, 2 opposite 5, and 4 opposite 6; 0642 and 0643 having 1 opposite 4, 2 opposite 5, and 3 opposite 6. Cf. *Ser.* iv. Pl. LI, M. I. iii. 004; iii. pp. 1293 sq., M. Tagh. a. 0031; a. iv. 00172, &c. *0641, 0642 c.* ½" cube; *0643* 9/16" cube. Pl. VI.

M. Tāgh. 0644. Fr. of stone, pinkish-white. Long and narrow, roughly shaped with flat back, sloping sides, and high narrow flat face which is cut away at one end. Notch cut in either side, near other end. Length 1¼", width ⅜" to ⅝", gr. thickness ⅜".

M. Tāgh. 0645–0646. Two stone beads; soft, white, cylindrical with narrow hole. Lengths 1/16" and ⅛", diam. ⅛".

M. Tāgh. 0647. Square of woollen fabric; light buff, very soft and regularly woven. 11" × 9".

M. Tāgh. 0648. Reed pen, as *Ser.* iv. Pl. LI, M. I. xlii. 003. One side split away. Length 3⅞".

M. Tāgh. 0649. Wooden implement; rounded stick, of gr. diam. (⅜") 6¼" from one end. At this point a shoulder, *c.* 1/16" deep, has been cut all round and thence smoothly tapered to the opposite end. Towards long end it is also smoothly tapered most of the way, but has subsequently been cut roughly for the last 1⅜". Use uncertain. Length 8⅜". Pl. VI.

M. Tāgh. 0650. Wooden stick, very smoothly trimmed, cut to abrupt point (broken) at one end, and to long tapering point at one side of stick (modern pen-fashion) at other end. Length 7¼", diam. 5/16". Pl. VI.

M. Tāgh. 0651. Fr. of reed; bevelled off in blunt point at one end, broken at other. Length 9¼", thickness ⅛".

M. Tāgh. 0652. Fr. of wooden implement; part of shaft, expanding slightly to long octagonal (?) head, one side of which is split away. Remains of gut or fibre binding immediately below head. Length of whole 5⅜", of head 2¼"; diam. of shaft ⅜", of head 9/16". Pl. VI.

M. Tāgh. 0653. Crescent-shaped piece of wood, smoothly cut, curve only slight; remains of pink paint over whole with band of black along shorter curve on one side. Use uncertain. Inner edge smoothed by friction, as from use as polisher. Length of arc (tip to tip) 4⅝", gr. width 1", thickness ⅛" to *c.* ⅛".

M. Tāgh. 0654. Fr. of fine woollen (?) canvas, showing remains of paint (unintelligible) on each side; perhaps painted banner. Binding preserved along one long edge and at one corner; edges otherwise torn. 12¾" × 6⅜".

M. Tāgh. 0655. a. Fr. of drawing (brought by Kāsim Ākhūn). Shows part of group of horses, galloping. Two horses complete except for hind legs; both heads well drawn. A third horse behind other two has lost its head; all have full manes. The nearest coloured a dull pink, second a grey brown, and third buff. A few roughly written Tibetan characters scattered about the paper. Original pasted to new paper. 11" × 7¾". Pl. VII.

M. Tāgh. 0655. b. Fr. of drawing on paper (brought by Kāsim Ākhūn). Youthful figure, in long smock fastening down L. p. side, black waist-belt, black top-boots, is leading a camel (?) and a horse. His face is full and hairless, hair of his head parted in centre and dressed in two knobs, one on each side. He carries a whip in his R. hand and grasps a bunch of reins in his left.

All that remains of the animals is the nose of a horse or camel to which a single cord is attached, and the uplifted forefeet of a horse which must be prancing. A pair of reins lead from youth's hand horizontally back from him and must belong to a second animal. Torn away to R. Fr. has been badly pasted on to a piece of paper, to preserve it. 10¼" × 3". Pl. VII.

OBJECTS RECOVERED FROM RUINED SHRINE BELOW FORT

M. Tāgh. c. 01. Fr. of plain plaster, with thin backing of similar material, thickly matted with silky fibre. Face has separated from backing, prob. owing to one surface being too dry when the other was applied. Associated with this, one fr. of felt, two pieces of canvas and a short length of string tied into small knots close together as a kind of rosary. Stucco 7¼" × 4½".

M. Tāgh. c. 02. Fr. of plaster; plain, similar in all

respects to M. Tāgh. c. 01, but slightly thinner. Fibre long and laid parallel. 8¼" × 2½".

M. Tāgh. c. 03. Fr. of plaster, similar to M. Tāgh. c. 01, but slightly thinner and laid over canvas. Fibrous plaster as used to-day, but with closer canvas than generally used now. Surface convex and painted grey. Much broken and perished. 3¼" × 2".

M. Tāgh. c. 04–5. Two frs. of plaster; plain, similar to M. Tāgh. c. 01, &c. Gr. fr. 5¼" × 2¼".

M. Tāgh. c. 05. Fr. of plain stucco, similar to M. Tāgh. c. 01. 5¾" × 2".

M. Tāgh. c. 06. Turned wooden finial, with tenon below not in centre. A thick-stemmed mushroom top rises from a ribbed bulb with a narrow collar between. Below bulb is saucer-shaped moulding resting upon broad plain fillet. Well designed.

For similar finial, slightly elaborated, see *Ser. iv*. Pl. XVII, Kha. viii. 002; see also M. Tāgh. c. 07–8. Cracked, but well preserved otherwise. H. of finial 6¾", diam. of base 3¼". Tenon 1¾" × 1" × ⅜".

M. Tāgh. c. 07. Turned wooden finial, similar to M. Tāgh. c. 06, 08. Cracked. H. of whole 9¼" (tenon 2"), diam. of base 3⅜". Pl. VI.

M. Tāgh. c. 08. Turned wooden finial, similar to M. Tāgh. c. 06, 07. Cracked. H. of whole 8¾" (tenon 1¾"), diam. of base 3¼".

M. Tāgh. c. i. 01. Carved wooden stile, with rebate on each long edge at back and tenon at one end. Carved front is divided into three nearly equal parts. Of these, centre division bowed outwards and divided lengthwise into three main bands. Middle band cut into lozenge shapes, by diagonal cross-cuts so placed that the two upper edges of each lozenge are chamfered, while lower edges are perpendicular to background.

Band on each side shows strip of nail-head orn. bordered by flat band on inner edge, and chamfer carved into leaves on outer.

The two end divisions are alike. A broad petal shape pointing towards centre comes next middle division, its edge in relief of about ¼". From edge shape is concave towards its base, holding in its hollow two smaller carved bands divided from each other by a deep groove.

The outer member at each end is a plain flat band. Reserved raised piece between rebates at back tapers slightly. Badly split and weathered. H. with tenon 12", width 2⅝", thickness 2"; rebates c. ⅜". Pl. VI.

OBJECTS FOUND UNDER NORTH-WESTERN WALL OF FORT

M. Tāgh. Fort. 01. a–b. Two frs. of wooden lock. (*a*) Fr. of bolt, pierced with five holes, and showing groove at one edge. 5¼" × 1⅞" × ½". (*b*) Tumbler block belonging to (*a*), pierced with five funnel-shaped holes. 2¼" × 1" × ⅜". Pl. VI.

M. Tāgh. Fort. 02. a–d. Wood and fabric frs. (*a*) Oblong wooden tablet, no writing visible; hole at one corner, much weathered. 4¼" × 3" × ¼". (*b*) Chip of wood, showing traces of black pigment. 3¼" × 1" × ¼". (*c*) Fr. of grey felt. 4¼" × 3". (*d*) Fr. of check woollen fabric, blue and white, close woven, in which above were wrapped. Good condition. 5¼" × 7¼".

M. Tāgh. Fort. 03. Bundle of reed straw, from wall. Length 12".

CHAPTER IV

FROM KHOTAN TO LOP

SECTION I.—ANTIQUES FROM KHOTAN SITES

Halt in Khotan town.

I WAS obliged to make a short halt at Khotan town for various purposes, among others to provide winter equipment for my large party and to raise a sufficient quantity of silver to meet all financial needs until my arrival next spring in distant Kan-su. Moreover, a rest was needed by all, both men and animals, who had shared the hardships of our desert expedition. I employed the six days' stay to gather such antiques as my ever-willing old friend Badruddin Khān, the Ak-sakāl of Indian and Afghān traders, and the 'treasure-seekers' dispatched by him, had collected from Yōtkan and from desert sites in the vicinity of the Khotan oasis. The sites named as the provenance of these antiques had almost all been visited by me on my former journeys, and the various classes of objects ascribed to them correspond in their character to the collections previously obtained. Since the latter have been fully described and illustrated in *Ancient Khotan* and *Serindia*, a very brief synopsis of the new acquisitions will suffice here.

Provenance of antiques collected.

As regards their provenance a word of caution may well be repeated.[1] Obviously objects brought for sale to Khotan town or obtained from 'Taklamakānchis' cannot be assigned to particular sites with complete assurance. But their comparison with the proceeds of my own former search at the sites named supports the belief that the local distribution of the several series of objects shown in the List below may be accepted as correct on the whole.

Terra-cotta figurines, &c., from Yōtkan.

This applies particularly to the large and interesting series of antiques, mainly terra-cottas, purporting to come from Yōtkan, the site of the ancient Khotan capital,[2] and marked with *Yo.* The terra-cotta figurines and decorated pottery remains show the closest agreement with those obtained by me on previous occasions at the site itself. An endeavour has been made to arrange them in definite groups for description in the List below, and this will facilitate comparison with the corresponding objects in my previous collections, as well as with those which Dr. Hoernle has described in detail. Among vessels, complete or fragmentary, special attention may be called to the fine and excellently preserved terra-cotta bottle (Yo. 01, Pl. I) having the shape of a pilgrim bottle and resembling Samian ware; the large pottery jug 'treated' by a recent hand (Yo. 0158, Pl. I); the fragment (Yo. 08, Pl. I) showing a Bacchic figure appliqué, of unmistakable Gandhāra type, with wine-skin and *rhyton*; the handles with fine palmette ornaments (Yo. 011–15, Pl. I, III); the spout with an appliqué human head (Yo. 017, Pl. I). Among appliqué fragments may be noticed the well-furnished Gorgoneion face (Yo. 018, Pl. I); the pieces (Yo. 20 a–d, Pl. III), illustrating an interesting development of leaf ornament; the grotesque masks (Yo. 042, 055–7, Pl. I); the head of rat type (Yo. 040, Pl. I). The series of terra-cotta heads (Yo. 048–54, Pl. II, III), male and female, comprise several specimens interesting for their type of coiffure. Among animal figures camels and horses (Yo. 065–78, Pl. II, III) are well represented, some retaining their riders or loads; Yo. 065 (Pl. III), with its mounted monkey, is very cleverly modelled. Figures of winged horses and other grotesque animals, mostly from terra-cotta handles (Yo. 079–99), show several curious types (see Pl. I–III). As in the former collections, representations of monkeys, often in

[1] Cf. *Ancient Khotan*, i. p. 203; *Serindia*, i. p. 97.

[2] See *Ancient Khotan*, i. pp. 190 sqq.

grotesque or comic attitudes (Yo. 0104–123, Pl. II), are particularly frequent. On the other hand the appearance among the terra-cotta remains of several small Buddha reliefs and fragments (Yo. 0133–6, Pl. II) is unusual. Whether the fragments of five votive plaques showing Buddha seated (Yo. 0137, Pl. III) were really brought from Yōtkan seems very doubtful in view of the softness of the material and the similarity of their design with those found at Mazār-tāgh.[4]

Miscell. acquisitions from Khotan.

Turning to miscellaneous acquisitions from Khotan I may note that those marked *Kh.* were obtained during my stay at Khotan, while the larger collection marked *Badr.* was made subsequently by Badruddīn Khān and delivered to me in June, 1915, at Kāshgar. In the case of the former it may be safely assumed that while most of the terra-cottas and other ceramic remains come from Yōtkan, the majority of the other objects, including all those in wood, plaster, and other materials liable to destruction by moisture, were picked up on ancient wind-eroded sites beyond the Khotan oasis, as alleged by the men who brought them, all known to me from my former visits as regular searchers of such 'Tati' areas. Special mention may be made of the seals in metal, stone, and glass (Kh. 03, 04, 06–7, 019, 023–4, Pl. X); of the Buddha reliefs in soapstone (Kh. 020–1, Pl. X); and among the numerous beads of those in paste and agate (Kh. 028, 031, 074, Pl. X), which show a peculiar decorative technique. Some of the glass beads, too (Kh. 032, 034, &c.), present interest by their treatment. Mr. K. Moldovack, an Armenian gentleman settled at Khotan, kindly added to this miscellaneous collection some metal seals, coins, and a colossal stucco head of Buddha (Kh. 0267, Pl. VIII) probably brought from some site like that of Ak-terek.[5] For this valuable gift I am glad to record here my grateful acknowledgement.

Khotan antiques brought to Kāshgar.

The large and varied collection of Khotan antiques brought by Badruddīn Khān in 1915 comprises some series of which he had noted the alleged provenance. But since none of these show any distinctive character and since, having received them at Kāshgar, I was unable to test otherwise the correctness of that record, a brief indication below of the different places of alleged origin will suffice.[6] Among the numerous terra-cotta remains, the face-mask (Badr. 029, Pl. V), the relief with two well-modelled dancing figures (Badr. 033, Pl. II), and the pottery fragment with a fine Byzantine-looking vine-leaf scroll (Badr. 0303, Pl. V), deserve special mention; similarly, among stuccoes, the relief fragments of heads (Badr. 0283–7, Pl. III, V, XI), and the Buddha plaques (Badr. 0288–98, 0381, Pl. III). The miscellaneous stucco relief fragments (Badr. 042–68, Pl. V, X), by their style and burnt condition closely recall my Ak-terek finds of 1906.[7] Stucco representations of Gandharvīs in different attitudes (Badr. 0340, 0348, &c., Pl. XI) are frequent. Small metal objects of interest are the bronze spoon and handle (Badr. 0112–14, Pl. X); the miniature bronze pick-axes (Badr. 0115–16, Pl. X), perhaps for ceremonial use; the bronze seals (Badr. 0192–5, Pl. X; 0411); the miniature wine-jug (Badr. 0420) of classical shape. The carved wooden finial or halo (Badr. 0203), reported as from Toghrak-mazār, may well belong to the site of that name briefly described farther on. [For the important collection of antiques acquired from Badruddīn Khān by Mr. C. Hardinge, late Vice-Consul at Kāshgar, and generously presented by him to the Museum of Central-Asian Antiquities, New Delhi, in 1923, see Appendix *M*.]

4 Cf. above, pp. 92, 95; M. Tāgh. 07–10, 028.

5 Cf. *Serindia*, i. pp. 134 sqq.

6 For the objects shown within brackets the following find-places were indicated by Badruddīn Khān: Hanguya 'Tati' (09–18, 0204–51, 0322–37); Ak-tiken (020–37, 0272–7); Kalta-kumat (038–68, 0118–21, 0297–321); Khādalik (069); Lachin-atā (070–5, 0338–46); Kalalik (097–114); Yōtkan (0122–46, 0170–202); Toghrak-mazār (0203); Bāsh-kumat (0249–61, 0383–93); Yantak-kuduk (0278–96); Arkalik (0347–81). For Hanguya 'Tati', Khādalik, Lachin-atā, Arkalik, cf. *Serindia*, i. pp. 134, 154 sqq., 126 sq., 134, respectively. Ak-tiken is known to me as an alternative name used by 'Taklamakānchis' for the Kara-dong site; see *Ancient Khotan*, i. p. 445. Toghrak-mazār is the small site, SE. of Kotāz-langar, which is briefly described below. Bāsh-kumat and Kalta-kumat are likely to be localities near the jade-pits of Kumat; see *Ancient Khotan*, i. p. 472. The position of Kalalik and Yantak-kuduk is unknown to me.

7 See *Serindia*, i. pp. 134 sqq.

Miscell. antiques from particular sites.

Of the collection of small Khotan antiques brought by Badruddīn Khān four sets have been separately listed owing to the interest attaching to their alleged provenance. The stucco relief fragments, marked as from Chalma-kazān and Kara-sai, agree very closely in character and in their material, a peculiar hard white plaster, with the stucco remains recovered by me from these two sites in 1908.[7] The finely designed bronze vase (Chal. 017, Pl. X), showing low relief ornament in Chinese style, was also said to have been obtained from Chalma-kazān. The origin of the few miscellaneous relief fragments, &c., said to have been found at Kohmārī, the ancient sacred site of the Gośṛiṅga hill,[8] cannot be verified in this way. But the attribution deserves nevertheless to be specially noted, as it suggests that possibly the site retains some relics of the Buddhist convent that Hsüan-tsang mentions as standing near its sacred cave, though on my visits in 1900 and 1908 to the Mazār that now marks the site, I failed to trace any.[9]

Finally I have deemed it advisable to keep apart the collection of miscellaneous small antiques acquired by me at Khotan from Tokhta-ākhūn, a 'treasure-seeker' already well known to me, as his statement that they were found by him mainly during searches of the adjoining 'Tatis' of Arkalik and Hanguya is borne out by the general character of the objects, which agrees with that of my own finds at Ak-terek and elsewhere in this area.[10] This collection is now marked *Ark. Hang*. The occurrence in it of objects undoubtedly belonging to the early Muhammadan period, such as the inscribed bronze fragment, Ark. Hang. 048, Pl. X, and the carnelian seal, 066, and of ceramic ware with green glaze (030, Pl. IX; 061), is in full accord with my chronological observations regarding the 'Tatis' at and near the Ak-terek site.[11] At the same time some, if not most, of the terra-cotta figurines and fragments, among which the wrestling monkeys (010, Pl. II), the graceful miniature vase (025, Pl. XI), and the appliqué frog (031) deserve special mention, may well have been added from Yōtkan or Tam-öghil.[12]

Remains from Toghrak-mazār.

On the last day of my stay in the Khotan oasis, November 29th, I was able to examine a small site close to the south-eastern edge of the Sampula canton and about a mile to the south-west of Kotāz-langar (Map No. 14. A. 3). From there I had received in 1908 a few stucco relievo fragments, evidently from a Buddhist shrine, and again during my latest visit to Khotan town some fragmentary leaves of paper in Brāhmī script and a variety of small remains to be noted presently.[13] On the lowest of the narrow gravel ridges which mark where the foot of the westernmost spur descending from the Tikelik-tāgh ends just above the cultivated area of the village of Jirak, Abbas, one of my 'treasure-seeking' party of 1906–8, pointed out to me the spot which had yielded the above-mentioned relics. It proved to be situated about 350 yards to the SSE. of a Ziārat, known as Toghrak-mazār, and about 150 feet above the level of the adjoining cultivation. Small debris of stucco, evidently from relievo decoration of walls, and of the same type as the fragments received in 1908, showed that a small shrine similar to those found at Khādalik and Dandān-oilik had once stood here. But it had been destroyed so completely that no trace of its walls survived. From the plentiful reed straw and dung mixed with the tiny debris it appears probable that the ruin was at one time used as a sheep pen. That the posts, &c., of its walls had been subsequently worked up for use elsewhere, just as at Khādalik, was suggested by the abundance of wooden chips.

By clearing the ground about 20 yards to the south of the destroyed shrine we brought to light a rough pottery jar, 10½ inches high, provided with two handles and closely resembling in shape

[7] Cf. *Serindia*, iii. pp. 1266 sq., 1270 sq., 1273, 1280 sq.

[8] See *Ancient Khotan*, i. pp. 185 sqq.; *Serindia*, iii. p. 1267.

[9] The point is of some interest in view of the alleged discovery of the famous Dutreuil de Rhins MS. of the Dhammapada at the same site; cf. *Ancient Khotan*, i. p. 188.

[10] See *Serindia*, i. pp. 141 sqq.

[11] Cf. *ibid.*, i. p. 140.

[12] See *Anc. Khotan*, i. pp. 472 sq.

[13] The stucco fragments acquired in 1908 are described and their provenance briefly indicated in *Serindia*, iii. pp. 1266, note 9; 1270. The MS. fragments received in 1913 are marked *Samp*. 08–44; see Mr. Pargiter's Appendix *E*.

the amphorae found at Kara-dong.[14] About 50 yards to the west I was shown the spot where the remains of paper manuscripts previously brought by Abbas had been found. Two small fragments in Brāhmī script (M.T. 01–2), one of them of a Pōthī leaf, were recovered here in my presence and confirmed his statement. We may accordingly accept as correct his attribution to the same spot of the miscellaneous remains above mentioned. In addition to a small wooden tablet, bearing three very cursive characters, apparently Tibetan (Samp. 05, Pl. XI), and the remains of a painted silk banner (Samp. 04), showing part of a head in faintly visible outlines, they comprise two fragments (Samp. 07, Pl. LXXVII) of a woollen tapestry border, woven in well-preserved colours with a bold and interesting pattern.

Section II.—LIST OF ANTIQUES ACQUIRED AT KHOTAN

ANTIQUES SAID TO HAVE BEEN BROUGHT FROM YOTKAN SITE

Yo. 01. Pottery. Terra-cotta bottle, shaped like pilgrim bottle, with short expanding neck and mouth, small handles tucked under spreading lip, flat base. Each side decorated with fully open lotus occupying whole surface; two rows of petals with grotesque human head in centre closely resembling Yo. 052, and *Ser.* iv. Pl. III, Yo. 0024 n. Bands of herring-bone pattern divide two sides. Surface coated with rich red glossy slip resembling quality of Samian ware. The grotesque is applied and has no slip over it. Very good work. 6" × $4\frac{3}{4}$" × $3\frac{1}{4}$". Pl. I.

Yo. 02. Pottery vase; small circular, flat bottom, short neck expanding slightly to mouth with thickened rim. Greatest circumference 1" from ground. Red, blackened by firing; surface unsmoothed and sand-encrusted. H. $2\frac{1}{4}$", gr. diam. $2\frac{3}{8}$", diam. of mouth $1\frac{1}{4}$". Pl. I.

Yo. 03. Pottery vase; small, circular, roughly made. Shaped like Yo. 02, Pl. I, but with slightly thickened rim only at mouth; no neck. Hole in bottom. Buff, browned by firing. H. $1\frac{1}{4}$", gr. diam. $1\frac{1}{4}$", diam. of mouth 1".

Yo. 04. Fr. of neck and handle of terra-cotta vessel, wheel-made. Neck outward-curving with ogee rim. Handle comes away gracefully from below rim, dropping to meet bulging shoulder.

Decoration:—on flat upper surface of rim, series of punched rings with dot centres; round middle of neck, three incised lines; on side of neck, appliqué conventional rosette with broad wedge-shaped mass hanging from centre; round base of neck, punched rings as on rim; on shoulder, downward incised lines alternately single and in pairs, the single lines flanked on each side by a row of punched dots (leaves).

Thin, good quality. Wedge-shaped mass hanging from flower is akin to 'jewels' of Yo. 031; cf. also 'seed-vessel' of *Ser.* iv. Pl. VIII, A. T. v. 0039, &c. H. 4", arc at bottom of fr. $4\frac{1}{2}$", thickness $\frac{1}{8}$" to $\frac{1}{4}$". Pl. I.

Yo. 05. Fr. of neck of terra-cotta vessel, expanding towards rim (lost) and shoulder. Decoration:—round neck, two bands of three incised lines, about $\frac{1}{2}$" apart, with three circles with dot centres stamped at irregular intervals between them. On shoulder, remains of similar circles. Above, remains of appliqué orn.: a pair of half-closed leaves curling downwards from upper edge, with conventional rosette between. Decoration carelessly done. H. 4", diam. 2", thickness $\frac{1}{4}$" to $\frac{7}{16}$". Pl. I.

Yo. 06. Fr. of side of terra-cotta vessel. Near lower edge, broad raised ridge, running horizontally and notched along apex. Above, appliqué fig. of corpulent man, squatting with knees wide apart and feet together resting on ridge.

Both hands on breast holding down narrow band of drapery (?) which flows R. and L. over arms. Dress otherwise consists only of narrow loin-cloth, ankle-boots, and three bangles incised on each wrist. Head lost. Gr. M. $4\frac{1}{4}$", thickness $\frac{5}{16}$". Pl. I.

Yo. 07. Fr. of terra-cotta fig., possibly human, with pointed basket hanging from R. shoulder; or tail-less Gandharvī, with human R. arm coming from under wing. Casting of R. half only; head and feet missing. General shape, a tapering half-cylinder finished off sq. at narrow end. Diam. here $\frac{1}{2}$", at shoulder end (broken) $1\frac{1}{8}$". Back covered with small incisions, usually indicating fur or down; remainder of body with grooved lines, tapering, or running parallel, towards narrow end.

The pointed obj. has two transverse incised lines near tip, suggesting binding at bottom of basket. Otherwise it is marked exactly as the wings of hoopoes and other animals in this and *Serindia* collection, with edge of circular patch conventionally representing the short upper feathers, preserved at shoulder end. Cf. winged horse, Yo. 088. a, Pl. II, and *Ser.* iv. Pl. II, Yo. 0030. b, 0061. Length 2". Pl. I.

Yo. 08. Fr. of neck of terra-cotta vessel, with Bacchic figure appliqué. Pose of figure suggests atlas-like supporters found in Gandhāra friezes.

Seated on ground the figure has L. foot planted with lower leg vertical; R. leg missing but prob. bent and resting flat; side of knee and ankle touching ground. Body inclined to R. p. Head $\frac{3}{4}$", turned slightly upward

[14] See *Serindia*, iii. Fig. 307.

towards long pendent object held up at arms length in L. hand. R. hand at R. side, grasps mouth of wine-skin. Upraised object prob. a form of *rhyton*. Head of child (infant Bacchus ?). Bracelets, and a mark at neck, perhaps necklet, or edge of tunic. Head slightly weathered. 3⅜" × 2⅛". Pl. I.

Yo. 09. Fr. of small terra-cotta vessel (?), with rounded bottom, and ovoid body tapering towards top, in which is hole. Round hole is incised whorl of conventional petals pointing downwards, and beneath them a band of cross-hatched orn. between incised lines.

Beneath this the surface is plain, except on one side, where some two-lobed attachment has broken away. In centre of one lobe is a hole made from the outside and piercing wall of vessel ; other lobe unpierced. The existing hole may have formed a spout, and the applied orn. decorated its point of issue. Bottom worn. H. 1⅝", gr. diam. 1¼". Pl. I.

Yo. 010. Fr. of handle of terra-cotta vessel, elliptical in section, almost straight. At base, on side of vessel, grotesque appliqué head like Yo. 052. To L. part of appliqué anthemion, to R. end of three raised fillets. Fine material, good colour and condition. Length of whole 4⅛", gr. width 2¼", width of handle 1 1/16". Pl. I.

Yo. 011–14. Four frs. of handles of terra-cotta vessels; lower part, covering junction with body. All of same pattern :—palmette spreading downwards, with innermost pair of leaves turning up in volute from which springs trefoil. Same as *Ser.* iv. Pl. II, Yo. 0057. Cf. also Yo. 015 and Badr. 0302. *011*, grey clay ; *012–14*, red clay. Gr. fr. 2¾" × 2¼". Pl. I, III.

Yo. 015. Fr. of terra-cotta handle ; upper part of preceding. Handle elliptical in section, almost straight ; orn. on outside with central raised rib or stem, which expands at lower end into pendent palmette. Junction of palmette and stem marked by three incised semicircles. On either side of stem, row of punched rings with dot centres. Length 2⅝", gr. width 1⅝". Pl. I.

Yo. 016. Fr. of terra-cotta handle from vessel. Came out from side or rim at right angles, and at length of 2" turns downwards and slightly inwards. Elliptical in section at upper end, circular at lower. Upper part in form of grotesque beast head, very rudely indicated. Length of perpendicular portion 3¼", diam. ⅝" to 1". Pl. I.

Yo. 017. Fr. of terra-cotta spout from vessel ; like tea-pot spout, with broad base, on front of which is appliqué human face, same type as Yo. 050, but much worn. Length 2⅜", gr. width 1¼". Pl. I.

Yo. 018–19. Two frs. from sides of terra-cotta vessels, with moulded orn. 018 shows good example of 'Gorgoneion' face, almost complete, with heavy curving eyebrows, bulging cheeks, thick triangular nose, and large mouth with swollen lips half-open. Whole framed in short curling locks of hair, resembling fronds of foliage, and encircled by bead border. For similar type, see *Ser.* iv. Pl. IV, Yo. 0043. a. 018. 2¼" × 2⅛". 019 (reproduced sideways) shows upper part only of similar orn. with lower end of long-leaved pendent palmette above. 2" × 2⅛". Pl. I, III.

Yo. 020. a–d. Four frs. of terra-cotta pottery decoration, showing in the order placed an interesting development of a detail inexplicable if seen in its later phase only.

020. a shows broad leaf with tip rolled over outwards, the midrib forming a simple valley between upward swelling halves of petiole. 020. b shows turned over tip only, but still growing from side of vessel, with midrib developed into pronounced rib. 020. c is a further departure from parent form, and 020. d shows how the tips only are made in separate pieces and applied in rows to form a continuous band of ornament, as in *Ser.* iv. Pl. IV, Yo. 01. a. See also Badr. 0322. Gr. fr. 2⅝" × 1¼". Pl. III.

Yo. 021. a–c. Three frs. of terra-cotta leaf-tip decoration from vessels ; as Yo. 020. d. Largest fr., *a*, 2¼" × 1⅛", shows band of three incised lines running below leaf-point, and pair of vertical lines at sides—latter being survival of leaf-outline of 020. a. Pl. III.

Yo. 022. Fr. of side of terra-cotta vessel, with raised ridge, notched, running across middle. Above, appliqué leaf-tip orn. as Yo. 021. a ; below, two elliptical jewel orns. with boss centre and bead border. For same decoration see *Ser.* iv. Pl. IV, Yo. 01. a. 2" × 2⅛". Pl. III.

Yo. 023. Fr. of side of terra-cotta vessel, with notched ridge running across. Above ridge, row of moulded circular jewel orns. or rosettes ; below, row of similar elliptical jewel orns. within bead borders as in 022. Below again, two wide incised annular lines. Fine red clay, surface polished. 2⅛" × 2⅛". Pl. I.

Yo. 024. Fr. of wall of terra-cotta vessel, with notched ridge above, and row of circular rosettes below. 2⅜" × 1".

Yo. 025. Fr. of side of terra-cotta vessel, orn. with circular rosettes, appliqué, between two incised horizontal lines ; and, above, fr. of incised festoon orn. 1¾" × 1⅛".

Yo. 026. Fr. of side of terra-cotta vessel, with appliqué rosette (seven beads surrounding a central one) and two incised annular lines below. 1⅜" × 1".

Yo. 027. Fr. of side of terra-cotta vessel, with notched ridge at top and remains of moulded rosette below. Much worn. 2" × 1⅜".

Yo. 028. Terra-cotta appliqué rosette from vessel ; ten beads surrounding a central one. Diam. ⅜".

Yo. 029. Terra-cotta appliqué jewel orn. from vessel ; as on Yo. 022. Part lost. Gr. M. ⅝".

Yo. 030. Fr. of side of terra-cotta vessel, orn. with two notched ridges, running horizontally. Between these large circular rosette. Below incised vertical line, with part of three-line festoon orn. separating to R. and L. 3¼" × 2¼". Pl. I.

Yo. 031. Fr. of neck of terra-cotta vessel. Above, part of three annular incised lines. Below, large appliqué

circular rosette, with cascade of jewels issuing from centre. Jewels akin in treatment to 'seed-vessel' of *Ser.* iv. Pl. VIII, A. T. v. 0039, and 'wedge-shaped mass' of Yo. 04. 3" × 1". Pl. I.

Yo. 032. Fr. of shoulder of terra-cotta vessel, orn. with applied palmettes hanging from small raised moulding. Same as *Ser.* iv. Pl. IV, A. T. 040. 1¾" × 1¾". Pl. III.

Yo. 033. Fr. of side of terra-cotta vessel, orn. with notched ridge above, two incised annular lines below, and incised chevron basket-pattern between ridge and lines. Below these again are traces of incised festoon pattern. 2¼" × 1⅝". Pl. I.

Yo. 034. Fr. of shoulder of terra-cotta vessel, orn. with band of two incised lines, above which is incised petal ornament, and below appliqué circular rosette. 1¾" × 1⅜". Pl. I.

Yo. 035. Fr. of terra-cotta vessel, orn. with applied palmette in low relief. 1¾" × 2⅛". Pl. III.

Yo. 036. Fr. of domical lid (?) of terra-cotta vessel, or small terra-cotta bowl. Orn. outside with whorl of long narrow petals, radiating from apex. Incised midrib to each petal, terminating in punched dot in centre of petal end; and circle of similar dots at origin of petals. Beyond petals ends are two incised annular lines. Flat rim, lightly notched. Arc at rim 1¼", h. 1¼".

Yo. 037. Fr. of rim of small terra-cotta bowl, like preceding but on larger scale. Remains of two petals with midrib and double outline. Single annular line beyond tips. Plain rim. Gr. M. 1$\frac{3}{16}$".

Yo. 038. Fr. of neck and rim of terra-cotta vessel. Lip, turned slightly outwards, is orn. outside with incised oblique lines. Below is narrow band of cable pattern; and below, again, row of applied upright palmettes with two incised annular lines underneath. Along broken edge at bottom, traces of applied rosettes. Rough work. 2¼" × 2¼". Pl. I.

Yo. 039. Fr. of neck of terra-cotta vessel, concave in profile from shoulder towards rim (lost). Raised ridge, with notched herring-bone orn. round junction of neck and shoulder; and similar ridge running vertically from it up neck. H. 3¼", arc at bottom 3". Pl. I.

Yo. 040. Fr. of shoulder of terra-cotta vessel. Incised orn. consists of three annular lines, with downward-pointing petal orn. (of type Yo. 036) above, and lozenge diaper below. On top of incised orn. is applied grotesque head of rat type, with reeded scroll curling up and outward from behind. Head has prominent muzzle and circle of curls like degenerate lion-heads of type Yo. 058; cf. also 'hyena' head of *Anc. Khotan*, ii. Pl. XLIV, Y. 009. p. 1¾" × 2¼". Pl. I.

Yo. 041. Fr. of neck of terra-cotta vessel, ribbed inside; outside orn. with crude head of bull (?) in bold relief. Traces of dark green discoloration over whole. 2¼" × 2¼". Pl. III.

Yo. 042. Terra-cotta appliqué mask, with potsherd attached. Grotesque human face of same type as *Ser.* iv. Pl. III, Yo. 001. o, but better modelled and more spirited. Mouth broadly smiling; L. hand under chin holding double cord or fold of drapery; bangles on wrist. Complete except tip of nose. 1¾" × 1⅞".

Yo. 043. Terra-cotta appliqué mask, from pot. Grotesque human head after type of preceding, but modified by freehand modelling after casting. Nose flattened; mouth straight with deep holes punched at corners; ears lost. 1⅜" × 1".

Yo. 044. Terra-cotta appliqué beast-head, with fr. of neck or straight side of pot. Lion-head of gargoyle type in high relief, roughly modelled. Holes at corners of mouth are deeply punched, meeting internally and prob. affording passage for ring. Raised moulding runs behind top of head. 1¾" × 1¾", relief 1". Pl. III.

Yo. 045. Terra-cotta appliqué mask, with fr. of potsherd attached. Degenerate lion-head as on Yo. 040, Pl. I. Potsherd orn. underneath mask with band of three deeply incised annular lines. 1½" × 1⅜".

Yo. 046. Pottery fr.; coarse gritty red clay, having an applied disc orn. with punched circle. Gr. M. 1⅜".

Yo. 047. Foot of terra-cotta vessel, flat, circular. Edge moulded round, with band of punched rings above. Within is mark where circular stem has broken off. Rough work. Diam. 2¼", h. c. ⅞", diam. of stem at point of attachment 1¼".

Yo. 048. Fr. of terra-cotta male head; mouth, chin, tip of nose, fr. of L. cheek and ear, with ear-ring of stamped circles. General type as in *Ser.* iv. Pl. I, Yo. 009. b, and with similar cable-like moustache. But there is no gorget, and chin is covered instead with short beard indicated by rows of incised dashes. H. 2¼". Pl. III.

Yo. 049. Fr. of terra-cotta male face; R. half only, from tip of nose to neck. Small well-modelled tip of nose and mouth; long rope-like moustache, and fringe of short beard and whiskers framing face continuously so far as preserved. Sharp outstanding ridge round middle of neck, perhaps edge of leather collar (?). For general type, cf. *Ser.* iv. Pl. CXXXIII, Mi. xi. 0097. H. 1¾".

Yo. 050. Terra-cotta relief head; female, well proportioned. Eyes long, R. eye slanting upward. Lower lip drawn in and puckered as though from grip of teeth. Hair in form of low coronet with small loops under ears. Eyebrows marked with series of slight indentations. Well modelled; fair condition, somewhat worn. H. 1¼". Pl. II.

Yo. 051. Terra-cotta relief head, of Chinese type; male. Eyes narrow and slanting; hair strained back from forehead. Well modelled. Ears and surface of nose lost; otherwise good condition. H. 1¼". Pl. II.

Yo. 052. a–o. Fifteen terra-cotta appliqué masks from vases. Grotesque human face, with parted hair, circular ring-punched eyes with dot centres, short prominent

triangular nose, wide thick-lipped mouth, and retreating chin. All are variations of same type, and from moulds similar to those of series *Ser.* iv. Pl. III, Yo. 001 and 0024, *q. v.* for full description; cf. also Badr. 0331.

Yo. 052. *a.* Dot in forehead, mouth simple line with dots at corner, no modelling of lips. L. ear lost. H. 1¼". *Yo.* 052. *b.* Like preceding, but nose and much of L. cheek gone, mouth slightly upturned. H. 1½". *Yo.* 052. *c.* like preceding, but flatter and much worn. Lips well modelled; forehead unmarked. H. 1⅞". *Yo.* 052. *d.* (brought by Badruddin). Ears, hair, and L. eye and brow lost; eyes in long sockets, wide lips down-turned. H. 1½". *Yo.* 052. *e.* Fr. only, like the preceding, but eyes flush with face. H. 1½". *Yo.* 052. *f.* Good example with potsherd attached; very wide lips, with holes drilled at corners; eyes of two concentric circles; nostrils and centre of forehead marked with small circles. H. 1⅜". *Yo.* 052. *g.* Similar to 052. d; vertical groove down forehead. H. 1¼". *Yo.* 052. *h.* Much worn, smiling mouth, eyes in sockets. H. 1¼". *Yo.* 052. *i.* Pointed ears complete with large lobes or rings; round prominent eyes; smiling lips; worn. H. 1½". *Yo.* 052. *j.* Small, crudely made; sketchy features. H. 1". *Yo.* 052. *k.* Large roughly made features; big holes for nostrils and in centre of forehead. H. 1 3/16". *Yo.* 052. *l.* Like 052. e, worn. H. 1¼". *Yo.* 052. *m.* Good example. Eyes in sockets, pointed prominent nose, wide lips down-turned, groove down forehead. H. 1½". *Yo.* 052. *n.* Smaller example of 052. c. Hair goes straight back, unparted. Worn. H. 1". *Yo.* 052. *o.* Small; face only preserved. Thin, prominent-nosed type, with wide lips down-turned. H. ⅞".

Yo. 053. a–d. Four terra-cotta female heads, *c* and *d* in relief only. Of same type as *Ser.* iv. Pl. I, Yo. 009. h. 1–14, and Yo. 0041 a–e, and with similar individual variations.

a (most complete) shows characteristic coiffure almost unbroken:—short straight fringe slightly parted, and long straight locks curving round cheeks, large top-knot with small pigtail falling behind, and main pigtail caught up to join it from nape of neck. Jewelled band round base of top-knot and over top. Long incised eyes and eyebrows, slightly oblique, with punched pupils; short triangular nose (worn away) with punched nostrils; short straight mouth with punched corners. H. 2⅜".

b. Well modelled, with broad face, delicate mouth, well-developed chin; punched pupils to eyes and hole in middle of forehead; front pigtail taken back over cushion; back pigtail lost. H. 1⅞".

c. In relief only, top-knot broken, prominent eyeballs with ring-punched pupils, high aquiline nose with small mouth close under it; large drilled holes for nostrils and mouth-corners. Good condition. H. 2 3/16". *d.* Face only; like preceding but much worn. H. 1⅜". Pl. II, III.

Yo. 054. Terra-cotta female head and bust; same type as *Ser.* iv. Pl. I. Yo. 009. d. 1–7 and 0041. *l.*, &c., but small scale. Hair in pompadour, with cushion under small pigtail, and large pigtail turned up from nape of neck. Features merely scratched in. Body preserved to waist, but no modelling. Fr. of R. arm outstretched. Raised ridge (belt?) round waist orn. with punctured dots. H. 1⅞". Pl. III.

Yo. 055. Terra-cotta appliqué mask. Grotesque satyr face, half human, half leonine. Low forehead deeply cleft, and small hole punched on each side of cleft. Eyes round ring with centre dot. Lion ears fleshy and standing out. Nose short, well projected, and fleshy. Mouth large, smiling, and deeply dented at corners. Long wedge-shaped beard. Hair in form of short lion mane radiating all round. Cf. *Anc. Khotan*, ii. Pl. XLIV, Kh. 003. k.

The portion of pot attached shows a line of four incised dots above and to R. of head. Very good, and well preserved. 2½" × 2¼". Pl. I.

Yo. 056. Fr. of terra-cotta appliqué mask. Grotesque satyr face, akin to the preceding, and similar to *Anc. Khotan*, ii. Pl. XLIV, Y. 0016, but bolder modelling. Upper teeth visible. All below broken away. Well preserved. 1⅞" × 1¼".

Yo. 057. Terra-cotta appliqué mask. Neptune-like crowned and bearded head as *Ser.* iv. Pl. I, Yo. 0020, but less carefully made. Frowning brows with groove down middle; oblique eyes; small full-lipped mouth slightly open; flowing moustaches; and aureole of spreading hair and beard. Ears and nose damaged. For better example, but eroded, see Badr. 0330. H. 2".

Yo. 058. a–j. Ten terra-cotta appliqué masks. Lion-head framed in mane of curls, as *Ser.* iv. Pl. II, Yo. 0025. a–i, 0043. b–d, &c. Frowning forehead; ring-punched eyes with dot centres; prominent pointed snout; heavy drooping moustache and down-turned mouth. In *a–d*, the moustache is marked by long incised lines following its curve; in *e–g*, by short lines incised across it; in *i*, by punched dots at base, and incised lines following curve at tip.

a. Complete, except for R. ear and in good condition. H. 2 3/16". *b.* R. half only, well modelled and good condition. H. 2¼". *c.* Ears, R. brow, and whole of mane except under R. cheek lost. Double-ring eyes with dot centre. H. 1 13/16". *d.* Lower part of face only; mane gone except for two curls. H. ⅞". *e.* Ears, end of nose and much of mane gone; rather flat relief. Small punched ring on each cheek and over each eye. H. 1⅝". *f.* Face only, ears and mane gone, worn. H. 1½". *g.* Complete but for L. ear. Modelling less spirited. Pointed nose, no moustache. H. 1 13/16". *h.* R. upper half only, extending from outer corner of L. eye, below tip of nose and across R. cheek. Large scale, and spirited modelling. Double horizontal wrinkle incised across top of forehead. H. 1⅞". *i.* Lower part only, from just above eyes to curls below chin; ears gone. Mouth open showing line of teeth. Double incised line framing face within circle of curls. Good condition. H. 1⅜". *j.* Small scale, rudely made and much worn. Features almost obliterated. H. 1".

Yo. 059. a–c. Three terra-cotta appliqué masks. Small lion-heads like the preceding but rudely made. No moustaches. Gr. h. ⅞".

Yo. 060. Terra-cotta appliqué mask. Grotesque lion-face, a variation of type Yo. 058, but smaller and more minute modelling. Moustache, cable twist and pointed. Very pointed snout. Well preserved. 1⅛" × 1¼".

Yo. 061. Fr. of terra-cotta squatting fem. fig., similar to *Ser.* iv. Pl. II, Yo. 2. Front half only, head, shoulders, and arms lost. No modelling of limbs, the fig. merely sloping forward in rounded swelling mass to knees. Dress a plain jacket or tunic, and pleated skirt, as in *Ser.* fig.; the jacket having similar border round bottom and down middle of front, orn. with short sloping incised lines. Marks of attachments broken off at sides of jacket, prob. ends of sleeves. On breast, two narrow pendent objects, perhaps ends of collar, one on either side of central vertical band of jacket, and sloping outwards to the respective sides. H. 2$\frac{3}{16}$".

Yo. 062. Fr. of terra-cotta grotesque squatting fig. R. knee and adjacent portions of fig. only preserved. Knee a bulbous mass covered with pleated drapery as in Yo. 061, &c.

On inner side remains half of grotesque face, filling centre of space between the two knees when fig. was complete. The mouth of this face acted as spout, as is shown by a channel visible on the broken edge of the fr. and running from mouth to inner cavity of vessel. For similar fr., see *Ser.* i. p. 124, Yo. 0056. H. 1¼".

Yo. 063. Fr. of terra-cotta bowl or small vessel, showing part of straight rim or foot, orn. with incised dashes. Above this is band of short incised vertical lines, then two annular lines, and above a band (incomplete) of counter-changed triangles, each having midrib in centre with short incised leaves. Over this, in one place, a small knob is applied. Gr. M. 1$\frac{5}{16}$".

Yo. 064. Fr. of terra-cotta fig.; heels and back of squatting fig. as *Ser.* iv. Pl. II, Yo. 2. Solid. H. 1⅜".

Yo. 065. Terra-cotta camel with monkey rider (presented by Sir George Macartney at Kāshgar). Good naturalistic group. Bactrian camel, standing, head lost; fore and hind legs respectively made in solid mass; hair marked by short incised dashes; no harness shown.

Monkey sits leaning forward in life-like pose; R. hand on breast; features of face marked and head slightly on one side giving meditative expression, but fig. otherwise very sketchily treated. H. 4". Pl. III.

Yo. 066. Terra-cotta camel; two-humped, standing, head raised (but lost). Fore and hind legs respectively joined in solid tapering mass, without modelling. Hair marked by few incised dashes on shoulders and flanks, tail by notched ridge, and edge of saddle-cloth by series of punched rings. Oblong cushion between humps. Rather rough work. Surface damaged on R. side. For similar type, see *Ser.* iv. Pl. II, III, Yo. 008. c and 0049. a. H. 3".

Yo. 067. Fr. of terra-cotta camel and rider, larger scale. R. leg of rider only preserved, with portion of camel hump in front and fr. of hand of rider laid against it (arm gone). Leg attired in pleated trouser finished by band at knee. Garment or boot below not indicated. Camel's hair shown by deep incised dashes. H. 2¼". Pl. III.

Yo. 068. Fr. of terra-cotta camel. Bactrian, with load between humps. Head and hind legs missing. For similar fig., see *Ser.* iv. Pl. III, Yo. 0049. a. H. 1⅞".

Yo. 069. Miniature terra-cotta camel and rider; legs of rider only. Camel, Bactrian, hind legs lost. Colour, grey, well modelled. H. 1$\frac{5}{16}$". Pl. II.

Yo. 070. Fr. of miniature terra-cotta camel or horse and rider, roughly made. Head of animal and upper part of rider missing. H. ⅞".

Yo. 071. Fr. of terra-cotta camel; head, neck, and front hump. Head raised; rudely modelled. L. side only. H. 2".

Yo. 072. Fr. of terra-cotta camel with monkey rider. Foreleg, shoulder, and part of front hump only. Foot of monkey at side. L. side only. H. 1¾".

Yo. 073. Fr. of terra-cotta camel; L. shoulder, lower end of neck and mane, fr. of front hump and pack, only. L. side. H. 1⅞".

Yo. 074. Fr. of terra-cotta camel; R. side only. Two-humped; standing, head and forelegs gone. Traces of pack between humps. Rough work. H. 2¼".

Yo. 075. Fr. of terra-cotta camel; hind leg and hump. R. side only. H. 2$\frac{7}{16}$".

Yo. 076. Terra-cotta horse and rider; type of *Ser.* iv. Pl. I, Yo. 0030. a. Head and neck and lower part of legs of horse lost, also upper part of fig. of rider. Horse solid and thick-set; cast in halves and joined together. Remains of scored saddle-cloth, and incised crupper and breast-strap.

Rider wears long trousers, and short jacket with border of incised dashes. Hair of horse not shown in this or other examples. Rough work. H. 2¼".

Yo. 077. Terra-cotta horse; R. side only. Complete except for feet and end of nose. Hogged mane, ring-punched eye, oblong saddle-cloth. Crupper indicated by incised line; also collar (?) and head-stall (?). H. 1⅞". Pl. III.

Yo. 078. Fr. of terra-cotta horse. Head and neck, bridled. Hogged mane, parted forelock. Type of *Ser.* i. p. 110, Yo. 0032. k. Gr. M. 1¾". Pl. II.

Yo. 079. Fr. of terra-cotta handle from vessel. Hind part of winged horse as Yo. 088. a, Pl. II. Tips of wings meet short recurved tail. Haunches have furry lower edges and are ornamented on sides with whirling rosettes, incised. Two hind legs fused into single bar-like mass which descends to meet side of vessel. Broken away above tip of wings and at feet. For other exx., see Yo. 080–3. Length 3". Pl. III.

Yo. 080. Fr. of terra-cotta winged horse, similar to Yo. 079, Pl. III, but wing portion broken away. Pierced as though for spout, and small hole on under surface. Length 2¼".

Yo. 081. Fr. of terra-cotta dragon-head. Eye, a raised circular knob with ring-punched circle and dot centre. Hair framing side of face, and backward-lying ear, marked by raised ridges notched transversely. Lower jaw shown (but broken off short); mouth open with ridge like that of ear following line of lips and perhaps representing teeth. L. side only; flat relief. Length 1⅜". Pl. I.

Yo. 082. Fr. of terra-cotta handle, exactly like Yo. 079, Pl. III, but on smaller scale. L. side only. Length 1⅜".

Yo. 083. Fr. of terra-cotta dragon-head, prob. from handle; as Yo. 079, Pl. III, but on smaller scale, and from R. side only. Haunch mark of punched circle, with minute ring-punched centre, and outer circle of similar small punched rings. For L. side possibly belonging, see Badr. 0325. Length 1¼".

Yo. 084. Terra-cotta spout in form of grotesque head of ox or deer. Muzzle tubular, tapering to round hole; mouth not indicated. High narrow ridge runs from forehead down middle of nose to ⅛" of tip. From each side of this, near upper end, springs outward curving horn, in form of flat applied strip covered with punched dots. Close beneath base of these are the eyes; low raised discs with ring-punched pupils. Good condition. Length 1$\frac{5}{16}$". Pl. III.

Yo. 085. Terra-cotta spout in form of ram's head and neck. Tubular muzzle like the preceding; ring-punched eye; large ears, and out-curling horns (L. horn lost). Good work, rough in detail. Gr. M. 1¾". Pl. III.

Yo. 086. a–f. Six frs. of terra-cotta handles, in form of grotesque sheep-head; same type as *Ser.* i. p. 108, Yo. 0015. 1. (type *a*); see also *Anc. Khotan*, ii. Pl. XLVII, B. 001. *e*.

a. Well-modelled example, complete to shoulder and broken off short of forelegs. Neck well arched; crescent-marked curly mane with groove down parting to root of curved nose; ring-punched eyes and nostrils; ears laid back; mouth drawn back at corners, the puckering of skin shown by two short incised semicircles. Gr. M. 2¼". *b*. Similar but smaller, and surface much worn. Gr. M. 2¼". *c*. Head and shoulders like two preceding, but inferior modelling; neck straight, with head at right angles; features crudely marked. Gr. M. 2$\frac{3}{16}$". *d*. Head only, good example but worn. Gr. M. 1⅜". *e*. Head and arched neck. Gr. M. 1$\frac{7}{16}$". *f*. Head only, fair example. Gr. M. 1$\frac{5}{16}$".

Yo. 087. a–d. Four frs. of terra-cotta handles; sheep-head and shoulders like the preceding, but castings from half-mould only. See also Badr. 0375.

a. R. side, with forelegs to point of attachment to vessel. Worn. Gr. M. 2¼". *b*. L. side, smaller; worn. Gr. M. 2¼". *c*. R. side; crude work; deep ring-punched eye; mouth slightly open but upper part of muzzle broken off; mane indicated by short straight incised dashes; collar of raised ridge notched transversely. Gr. M. 1¾". *d*. Head and neck only R. side; good specimen. Gr. M. 2¼". Pl. III.

Yo. 088. a–d. Four frs. of terra-cotta handles, in form of winged horse; as *Ser.* iv. Pl. II, Yo. 0015. I–i (type b) and 0030. b, h, &c. Short hogged mane; forelock rising into blunt horn on forehead; short feathers at head of wing indicated by circular patch of lozenge pattern.

a. Excellent specimen, preserved to half-way down wing. Colour, grey. Length 3¼". *b*. The same, red, head gone. Gr. M. 2¼". *c*. Smaller scale, worn smooth. Whole of short wing preserved, and forelegs with potsherd attached. Gr. M. 2¼". *d*. Head only, good specimen somewhat worn. Gr. M. 1¼". Pl. II, III.

Yo. 089. a–b. Two frs. of terra-cotta handles, winged horse like the preceding, but half-castings only. *a*. R. side, head to half-way down wing; chipped at edges. Gr. M. 2¼". *b*. Head only, nose gone below eye. Gr. M. 1$\frac{11}{16}$".

Yo. 090. Terra-cotta horse-head, prob. from fig. like Yo. 077, Pl. III; crude. Ears and eyes mere punched dots, the eyes having punched circle round them. Bridle marked by double incised line. Mouth slit. For better example, see Badr. 0370, Pl. II. Gr. M. 1¼".

Yo. 091. Terra-cotta grotesque horse-head; as in winged horse handles, Yo. 088. a–d, Pl. II, III, but larger size and more stylized. Mane and hornlike forelock the same; long hair along jaw emphasized; face more griffin-like, with indentation under brow, and curving pointed muzzle approximating to beak. Good specimen, and well preserved. Cf. the following. Gr. M. 2¼".

Yo. 092. Terra-cotta grotesque horse-head; like the preceding but still more bird-like. Long pointed muzzle, the beak-like character of which is emphasized by tapering incised lines meeting at the point. In their upward course these lines are cut transversely by deep groove immediately below eyes; they separate above eyes, dropping beyond them, on either side, in a depressed curve. Fine curved lines also accentuate sweep of jaw and corner of curving mouth. Eyes are deeply ring-punched with dot centres, and deep tapering holes are bored in back-lying ears. Fine modelling. Length 1$\frac{5}{16}$". Pl. III.

Yo. 093. Terra-cotta gavial-head, prob. from handle; as *Anc. Khotan*, ii. Pl. XLV, Kh. 003. l, but horn lost. Spirited modelling, but somewhat rough. Length 1¾". Pl. II.

Yo. 094. Terra-cotta camel-head and part of neck with long hair hanging from it. R. side only. Top-knot on head. Semi-grotesque type. H. 1⅜".

Yo. 095. Terra-cotta sheep-head; L. side only. Length 1¼".

Yo. 096. Terra-cotta beast-head in high relief. Grotesque lion type with human nose, wide grinning beast mouth showing row of teeth, and eyes with long drooping corner and small ring-punched pupils set under over-hanging brows. Two short incised lines slope downwards

on each side from corner of mouth. Poor modelling. Akin to *Ser.* iv. Pl. 1, Yo. 0012. m. H. 1 3/16", width 1¼", relief ⅝". Pl. II.

Yo. 097. Terra-cotta deer-head; red, glazed green; high relief. Horns broken off short. Length 2¼", relief 1". Pl. III.

Yo. 098. Fr. of terra-cotta beast-head; grotesque, roughly modelled, with long prominent nose (broken) and bulging eyes. Red, with traces of thick green glaze over whole. Length 2¾".

Yo. 099. Terra-cotta parrot head and neck, crude. Beak gaping; deep holes punched for eyes; and another drilled through from side to side on ear-level. H. 2¼". Pl. III.

Yo. 0100. Terra-cotta ball, probably grotesque female torso, crudely modelled. Ring-punched omphalos, and pudendum surrounded by punched dots. Diam. 1⅝".

Yo. 0101. Fr. of terra-cotta vessel, semi-cylindrical; outside crudely worked in form of monster head (incomplete) stretched out flat from neck or shoulder. Fine material. Cf. Yo. 081, Pl. I. Length 2¼".

Yo. 0102. Terra-cotta model of waterskin; distended, hollowed inside, limbs broken off except one foreleg, short notched tail. Length 1⅞".

Yo. 0103. Fr. of terra-cotta bird (pigeon?). L. side only, showing folded wing. Head, tail, and feet missing. Fine work. Length 1¾".

Yo. 0104. Fr. of terra-cotta monkey-head, much stylized; similar to *Ser.* iv. Pl. IX, A. T. v. 2. Gr. M. 1 5/16". Pl. II.

Yo. 0105. Fr. of terra-cotta monkey-head; in relief, roughly modelled. Dots punched for nostrils, ring-punched eyes, heavy scored eyebrows, and deep grooves across forehead and crown. Lower part broken away. H. 1 9/16".

Yo. 0106. Fr. of terra-cotta monkey. Legs, kneeling; feet lost. L. hand in lap grasps cylindrical object, through which hole is pierced to interior of fig. Bangles on wrist. Roughly modelled. H. 2¼".

Yo. 0107. Terra-cotta monkey-head and shoulders, in relief. Head turned over R. shoulder; alert expression. Fur marked by incised dashes and dots. H. 1¼". Pl. II.

Yo. 0108. Upper half of terra-cotta monkey. Head leaning forward with out-thrust jaw; round shoulders; arms outstretched but broken above elbows and fig. at waist. Fur marked only on head; face outlined by incised groove. H. 1⅞".

Yo. 0109. Terra-cotta grotesque fig.; squatting, arms lost. Head, male, bald; with big moustaches, well developed breasts and abdomen. Roughly modelled. H. 1¼". Pl. II.

Yo. 0110. Terra-cotta female monkey, squatting, with knees apart. Arms lost. Fur marked only on head and thighs. H. 1¾". Pl. II.

Yo. 0111. Fr. of terra-cotta fig., monkey or human; seated apparently in European fashion with thighs together and pointing forwards, but broken just below knees. Body leaning forwards. Mass of long hair (?) down back. Head gone, no arms, sex not indicated. Very rude work, and unfinished. H. 1¼".

Yo. 0112. Terra-cotta monkey; grotesque type, standing with feet apart and holding flat oblong obj. before body. R. arm broken off, and R. leg below knee. Loin-cloth. Roughly made. H. 1¾". Pl. II.

Yo. 0113. Upper half of terra-cotta monkey; very badly made. Body a mere inverted cone, and arms curving hands applied to back of shoulders (R. broken short). Head a grotesque ball with groove for neck. Fur not marked. H. 1 7/16".

Yo. 0114. Fr. of terra-cotta monkey; evidently seated with legs apart, but both arms and legs are broken off at junction with body. Body and head erect; impudent expression. Fur marked on head and back, but not front of body. H. 1¾". Pl. II.

Yo. 0115. Fr. of terra-cotta monkey, very rudely made and in bad condition. Prob. seated, but legs (and R. arm) gone. L. arm by side. Head looking up from erect body. H. 1¼".

Yo. 0116. Fr. of terra-cotta monkey, squatting on heels. Legs only and fr. of body; notched strip (loin-cloth?) across thighs. Rough work. Gr. M. ⅞".

Yo. 0117. Fr. of terra-cotta group. Bird astride long-necked bird (?), whose head and tail are lost, and whose legs form kind of pedestal. Legs and ends of wings only of riding bird preserved. Rough work. H. 1⅞".

Yo. 0118. Terra-cotta monkey, as baby in cradle; type of *Ser.* iv. Pl. III, Yo. 0010. a–b and 0038. a–d. Spoilt in making. Length 1⅝".

Yo. 0119. a–g. Seven terra-cotta monkey-heads; grotesque, roughly made; *e–g* miniature. Gr. M. ⅞". Pl. II.

Yo. 0120. Fr. of terra-cotta monkey, roughly made. Legs apart, broken off at knees; arms and face gone. H. 1 3/16".

Yo. 0121. Fr. of terra-cotta monkey, seated on horizontal bar, playing guitar. Head and L. arm lost; wearing loin-cloth. Roughly made. H. ⅞". Pl. II.

Yo. 0122. a–c. Three frs. of terra-cotta monkeys, squatting and playing guitars. Heads of grotesque type. Loin-cloths. Most of L. arm of *a*, and head and legs of *c*, lost. Gr. M. 1". Pl. II.

Yo. 0123. a–m. Thirteen frs. of terra-cotta monkeys; mostly torsos only, but *a*, *b*, and *c* have heads. *g* has plait of hair down back; *i* and *j*, hands meeting on breast, elbows held outwards. Gr. M. 1¼".

Yo. 0124. Terra-cotta hoopoe; beak, wings, and legs gone. Hole through body vertically. Length 1¾". Pl. II.

Yo. 0125. Fr. of terra-cotta appliqué rosette, conventional, as on Yo. 04, Pl. I. Gr. M. $\frac{5}{8}$".

Yo. 0126. Terra-cotta disc or counter; each face convex, with knob (?) broken off centre. On one side incised four-pointed star. Diam. $\frac{7}{8}$".

Yo. 0127. Fr. of terra-cotta elephant's face (Gaṇeśa ?). Broken on front and all sides. Prob. appliqué orn. H. $1\frac{3}{8}$".

Yo. 0128. Fr. of terra-cotta coiffure, being the high top loop of hair from head similar to *Ser.* iv. Pl. CXXXII, Mi. xi. 00103; cf. also iv. Pl. VIII, A. T. iv. 0096. H. $1\frac{1}{8}$".

Yo. 0129. Fr. of terra-cotta fig. R. shoulder and breast of woman fig. (?), with cincture under arms, and lines of drapery drawn down from shoulder to middle of breast. H. $1\frac{3}{4}$".

Yo. 0130. Fr. of stucco architectural orn. Octagonal faceted jewel with three of cardinal points ornamented by moulded bands, fourth resting on top of volute. Same as *Ser.* i. p. 152, Si. 006. H. $1\frac{1}{8}$". Pl. II.

Yo. 0131. Fr. of terra-cotta model railing, as *Ser.* i. p. 115, Yo. 0065. Sq. panels between upright posts, grooved down middle and finished with ball top and bottom. Surface worn. Length $2\frac{3}{8}$".

Yo. 0132. Fr. of terra-cotta vessel, upper edge (?) with rough relief orn. of foliate (?) character. $1\frac{3}{4}$" × 2" × $1\frac{3}{8}$".

Yo. 0133. Terra-cotta relief of seated Buddha, prob. from plaque; seated in meditation. Head lost. Surface worn. H. $2\frac{1}{4}$".

Yo. 0134. Fr. of terra-cotta relief Buddha, prob. from plaque; seated in meditation; legs only remain crossed at ankles, and forearm with hands interlocked in lap. Slightly discoloured at one end. Gr. M. $2\frac{1}{4}$".

Yo. 0135. Head and part of halo of terra-cotta relief Buddha. Slanting eyes. Hair not modelled. Good work. H. $1\frac{1}{4}$".

Yo. 0136. Head of terra-cotta relief Buddha, like the preceding. Long slanting eyes. Excellent modelling. H. 1". Pl. II.

Yo. 0137. a–e. Frs. of five votive terra-cotta plaques, from the same mould. Pear-shaped; showing Buddha seated in meditation on growing lotus, from stem of which leaves as simple scrolls spring R. and L. Flame border to halo. Character of modelling suggests that mould was cut in intaglio direct, and not made from a relief original. Very simple treatment. Clay rather soft. Mould *c.* 3" × $2\frac{1}{4}$". Pl. III.

Yo. 0138. a–h. Eight terra-cotta spinning-whorls; dome-shaped, of varying degrees of depth.

a–c, plain. *d*, orn. round lower in-drawing portion of dome with roughly incised band of chevron and horizontal lines in the angles. *e*, round hole (under side of dome) faintly incised six-rayed star. *f* (same position), eight-petalled rosette; round lower side of dome, double row of punched dots. *g*, round widest circumference, annular line; above, whorl of downward pointing petals; below, band of chevron. *h*, finely made. Under-side of dome, seven-rayed star within circle, with dots between rays. Round widest circumference of dome, cable band. Holes generally tapering. Gr. M. (*e*), diam. $1\frac{5}{16}$", h. $\frac{7}{8}$". Pl. II, III.

Yo. 0139. Bronze finger-ring, with device of seated griffin in intaglio. Much worn on face. Diam. $\frac{3}{4}$".

Yo. 0140. Bronze fr., prob. of bangle. Snake-head terminal with four wires forming cable issuing from neck. Head cast, hollow; wires wrought and inserted in back of neck which is clamped over them. Good. $\frac{5}{8}$" × $\frac{1}{4}$". Pl. X.

Yo. 0141. Iron mouthpiece for vessel (?). Circular band attached by one edge to oblong plate, which has its corners cut off, and its two ends bent down. Within band, plate is pierced with an oblong hole, widened at long sides by segmental piece cut away for about $\frac{1}{3}$ of length. Perhaps intended to take cap fitting over band, with shank shaped like hole and so made that after insertion it could be turned $\frac{1}{4}$ revolution to fix it. Well preserved. Plate $1\frac{7}{16}$" × $2\frac{3}{8}$".

Yo. 0142. Oblong piece of turquoise, with band of Greek fret incised on both sides. One long edge chamfered. $\frac{3}{4}$" × $\frac{1}{2}$" × $\frac{1}{8}$".

Yo. 0143. Sixty-three glass and paste beads; spherical, bugle-shaped, drum-shaped, &c. Mostly blue, green, or yellow. Gr. length $\frac{5}{8}$".

Yo. 0144. Forty-six glass and paste beads; mostly drum-shaped, blue, and green. Average diam. $\frac{3}{16}$".

Yo. 0145. Sixteen glass beads; blue and green, mostly ring or drum-shaped. Average diam. $\frac{1}{4}$".

Yo. 0146. Twenty-two shell beads of various sizes, and one 'duck' charm of shell. Gr. diam. $\frac{3}{8}$".

Yo. 0147. Five polished stone discs, dark grey, sides convex, and in one case roughly faceted. Average diam. $\frac{1}{2}$".

Yo. 0148. Circular stone seal, prob. white jade. Flat disc. Design not cut. Diam. $\frac{7}{16}$".

Yo. 0149. Eight frs. of ore, prob. iron pyrites. Gr. M. $\frac{11}{16}$".

Yo. 0150. Fr. of dark red substance, heavy, prob. lead or antimony oxide. Gr. M. $\frac{3}{4}$".

Yo. 0151. Misc. frs. of bronze, lead, cornelian, lapis lazuli, coral, shell resin, &c., worked and unworked. Gr. M. (bronze pin) $1\frac{1}{4}$".

Yo. 0152. Five frs. of ore; exact nature undetermined. Gr. M. $\frac{1}{2}$".

Yo. 0153. Fr. of yellow stone, surface covered with irregular natural markings. Cf. *Ser.* i. p. 115, Yo. 0088. Length $\frac{5}{8}$".

Yo. 0154–5. Two lignite charms (?), in form of seated animal of lion type with head drawn back on shoulders, back hunched, and feet gathered under it (not shown). On under-side of each, two grooves running lengthways.

Hole pierced through body of each horizontally. Heads rudely cut but with expression; no detail otherwise. Lengths 15/16" and 1 1/8".

Yo. 0156. Fr. of bronze disc, much corroded. Gr. M. 1 3/16".

Yo. 0157. Misc. bronze frs., including pieces of plate, loop (of wire, doubled), sq. knob, ring, pins, and fr. of rivet plate. Gr. M. 1 1/16" × 3/4".

Yo. 0158. Large pottery jug, with flat bottom, globular body, and comparatively short neck expanding slightly to plain rim. Loop-handle comes out at right angles from neck, about 1" below rim, and turning downwards at length of 1 1/4"–2" falls almost straight on to turn of shoulder.

Round wall of neck have been applied by later hand three masks of grotesque human type as Yo. 052; and on top of handle, with nose overhanging rim, a horse-head, of type Yo. 091, but of inferior execution. These applied orns., too small in scale for the jug, are recent additions, but of ancient make. Good condition. H. (to rim) 12 1/4", gr. diam. 9 1/4", length of neck c. 4", least diam. of neck 3 3/4", diam. of rim 4 3/4". Pl. I.

ANTIQUES ACQUIRED OR PRESENTED AT KHOTAN TOWN

Kh. 01. Fr. of chunam painted in distemper. Band of light red-brown on which is outline scroll pattern in black, representing vine and grapes, very formal and stylistic. On either side of band, red-brown. Well preserved. 4 1/16" × 3 3/8".

Kh. 02. Stucco fr. of L. hand. Long slender outstretched fingers with long narrow nails, index finger broken, thumb missing. Surface slip cracked; back only modelled. Burnt. Length 3 1/4". Pl. III.

Kh. 03. Bronze stamp or seal (presented by Mr. Moldovack), triangular with pointed cinquefoil device. Pierced shank at back. 3/4" × 3/4", h. 5/8". Pl. X.

Kh. 04. Bronze stamp or seal (presented by Mr. Moldovack), in form of two birds confronting, the heads fused into one, with beak pointing each way. General form crescented. For more degenerate examples, see *Ser.* i. p. 119, Yo. 00176; p. 123, Khot. 007. At back a pierced shank. 1 3/4" × 1 1/4".

Kh. 05. Fr. of charred wood, on one side of which is rudely cut a human face in low relief. Hair as fringe on forehead. Shape and proportions of features bad. Make possibly modern. 2 3/4" × 2 3/4" × 1".

Kh. 06. Carnelian seal. Circular disc, with convex sides, pierced through middle. One edge cut off straight, and on sectional surface thus formed, device of fire-altar (?). H. 1/4", gr. width 11/16"; face 9/32" × 13/32". Pl. X.

Kh. 07. Fr. of carnelian bead; with quatrefoil pattern etched on each square facet by a process causing decomposition of the surface where the lines occur. For examples of the same process, see *Ser.* iv. Pl. IV, Khot. 02, q and r. Gr. M. 1/2".

Kh. 08. Miniature bone duck, with hole drilled for suspension. Cf. *Anc. Khotan*, ii. Pl. LI, Y. 002 b. ii. 3/4" × 7/16". Pl. X.

Kh. 09. Terra-cotta fr. of potsherd with appliqué mask. Grotesque lion-face, surrounded by mane; inferior example of type Yo. 058. No moustache. 1 1/4" × 1 1/4".

Kh. 010. Terra-cotta grotesque animal head, L. side only; sheep or camel. 1 3/16" × 1 1/4".

Kh. 011. Grotesque terra-cotta monkey, head, neck, and shoulders. High pointed head; deep furrow between eyes; prominent mouth. Beginning of arms broad and wing-like. 1 1/4" × 3/4".

Kh. 012. Grotesque terra-cotta human face. Thick eyebrows and moustache; prominent eyes; nose broken. On head a cornet-like ornament projecting forward. 1" × 13/16". Pl. II.

Kh. 013. Terra-cotta monkey-head; owl type. 3/4" × 1/2".

Kh. 014. Grotesque terra-cotta monkey, upper half. Owl type. Arms curving forward horizontally (broken). 3/4" × 7/16".

Kh. 015. Grotesque terra-cotta monkey; owl type. Hands to face holding small flat object. Legs broken off. 7/8" × 1/2".

Kh. 016. Grotesque terra-cotta monkey. Lower half and one arm missing. Other arm broken off above elbow. Large projection at chest. 13/16" × 1/2".

Kh. 017. Grotesque terra-cotta monkey-head; owl type. 9/16" × 5/8".

Kh. 018. Grey marble fig. of horseman. Hands raised to chest. Very angular, crudely cut, and badly proportioned. Horse's legs all straight and short; off foreleg broken. Saw cuts between rider and horse's neck, and between horse's legs. 2 1/4" × 2 3/4" × 3/4".

Kh. 019. Yellow marble seal, in form of rectang. shrine with pyramidal top. Two hollow mouldings between top and base. A horizontal notch in each corner of base, another at each angle of pyramid, and vertical groove on each face of pyramid. Hole drilled horizontally below pyramid. Device on bottom face: an animal with long recurved tail and four legs (shown as two on one side); very crude. H. 3/4", base 5/8" × 9/16". Pl. X.

Kh. 020. Soapstone relief fr. Miniature Buddha in Dhyāna-mudrā. Straight Padmāsana with petals hanging downward suggesting drapery. Oblong vesica rounded at upper corners. Head roughly carved; proportions of body, good. 1 5/16" × 3/4". Pl. X.

Kh. 021. Soapstone relief fr. Buddha face and front of head, much damaged on L. p. side. Long ears; Uṣṇīṣa. Broken at neck and back. 7/8" × 9/16". Pl. X.

Kh. 022. Misc. small frs. of jade, flint, agate, carnelian,

coral, green glass, blue frit, &c., and date stone. Gr. M. (stone) $1\frac{1}{12}$".

Kh. 023. Fr. of bronze finger-ring, set with elliptical glass seal. Device probably Athene; poor workmanship. Length of fr. $\frac{3}{4}$", seal $\frac{7}{16}$" × $\frac{5}{16}$". Pl. X.

Kh. 024. Glass seal similar to that of Kh. 023, but without setting and either worn out or never properly made. Device is merely a shallow depression. $\frac{7}{16}$" × $\frac{3}{8}$".

Kh. 025. String of glass, paste, and shell beads. Three with light lines on a dark paste, as *Ser.* iv. Pl. IV, Khot. 0069, &c. One, tubular, red paste longitudinally streaked with grey and darker red. Gr. M. $\frac{7}{16}$".

Kh. 026. String of glass, paste, shell, and agate beads. One with light wavy line on dark paste. Gr. M. $\frac{7}{16}$".

Kh. 027. Six glass, stone, and paste beads. One green glass with 'marbling' in yellow lines. Three dark grey paste with light lines. One dark grey paste with translucent blue spots set in light grey cement, as *Ser.* iv. Pl. VI, Togujai. 0021; Khot. 0072. One barrel-shaped grey stone. Gr. M. $\frac{11}{16}$". Pl. X.

Kh. 028. Fr. of fine paste, of curiously blended buff and dull brown frits giving a marbled character which extends through the substance of the fabric. Completely vitrified and coated with extremely thin glaze on both sides. An abrupt change in thickness occurs in a curved line on one side. Well preserved. For another example, see K. E. 01; A. K. 07, Pl. LI. $\frac{3}{4}$" × 1" × $\frac{3}{32}$" to $\frac{1}{8}$".

Kh. 029. Fr. of glass bead, translucent pale green; hexagonal prism, slightly convex in length and drilled through axis. Length $\frac{3}{4}$", diam. $\frac{7}{16}$".

Kh. 030. Fr. of handle of glass vessel; pale green, translucent. Surface exhibits delicate metallic lustre. 1" × $\frac{3}{8}$" × $\frac{5}{16}$".

Kh. 031. Fr. of agate bead; large barrel-shaped, of pale honey-colour; decorated with transverse and diagonal lines by a process of decomposition of surface, cf. Kh. 07; and *Ser.* iv. Pl. IV, Khot. 02. q. r. $\frac{13}{16}$" × $\frac{9}{16}$". Pl. X.

Kh. 032. Fr. of glass bead; dark green with pale yellow bands, introduced by millefiori method. $\frac{3}{8}$" × $\frac{1}{4}$".

Kh. 033. Fr. of paste bead; opaque dark grey with white inlaid surface pattern. $\frac{23}{32}$" × $\frac{5}{16}$". Pl. X.

Kh. 034. Fr. of glass bead; opaque dark grey (iridescent), with remains of applied spots of translucent glass. $\frac{1}{2}$" × $\frac{1}{4}$".

Kh. 035. Translucent glass boss; dark blue surrounded by light grey glass cement. Detached from surface of bead. $\frac{1}{4}$" × $\frac{3}{16}$".

Kh. 036. Fr. of graphite stick; polygonal, worn by rubbing. $\frac{5}{16}$" × $\frac{3}{8}$" × $\frac{1}{4}$".

Kh. 037–8. Frs. of small glass beads with inlaid spots. *037.* Millefiori type; translucent blue and white; diam. $\frac{3}{8}$". *038.* Dark grey paste, with translucent blue spots set in whitish cement, as *Ser.* iv. Pl. VI, Togujai. 0021; Pl. IV, Khot. 0072. Diam. $\frac{3}{8}$".

Kh. 039. Stone fig. of squatting monkey, dark grey. Elbows tight to sides; hands at breast with tips of fingers meeting. Face very long; eyes circular and deep. Crude work, chiefly in straight cuts, prob. done with cutting wheel. $1\frac{1}{8}$" × $\frac{3}{4}$" × $\frac{11}{16}$". Pl. III.

Kh. 059. Pottery spinning-whorl; roughly made. Irreg. six-petalled flower incised on under-side. Pottery whorl. Diam. $1\frac{1}{4}$", h. $\frac{3}{4}$".

Kh. 060. Circular disc of red pottery, with thin upright mitre-shaped solid handle. R. and L. of handle pairs of holes. Prob. cover of vessel. Half broken away. Diam. $5\frac{3}{4}$", thickness $\frac{1}{4}$", handle $2\frac{1}{4}$" × $1\frac{3}{8}$" × $\frac{1}{4}$". Pl. XXV.

Kh. 070. Paste cabochon jewel; very fine sky-blue, semi-ellipsoid; with piece of jeweller's cement for fixing, adhering to back. $\frac{3}{8}$" × $\frac{3}{8}$" × $\frac{1}{4}$".

Kh. 071–98. Misc. paste, glass, stone, and shell beads. *071.* Spherical; opaque buff paste with translucent yellow-green rods pressed obliquely into surface. Diam. $\frac{3}{8}$". *072.* Four-sided tubular; dark yellow translucent glass; made by pressing warm glass round a mandril. Length $\frac{9}{16}$". *073.* Polygonal; yellowish glass, iridescent. Diam. $\frac{1}{4}$". *074.* Spherical (fr.); black paste decorated with lines of white. Seems to have been made by shaping from a strip of paste first painted with lines of white vitreous enamel, applied with a brush, and not by the more usual process of inlaid rods. Diam. $\frac{1}{2}$". *075.* Spherical; red carnelian, roughly made. Diam. $\frac{5}{16}$". *076–81.* Small drum-shaped and spherical; dark blue, green, and yellow translucent glass. Gr. diam. $\frac{1}{4}$". *082.* Small barrel-shaped; black paste orn. with impressed white wavy line. Diam. $\frac{1}{4}$". *083.* minute tubular; opaque brown paste. Length $\frac{1}{16}$", diam. $\frac{1}{32}$". *084–6.* Small drum-shaped; translucent blue glass. Gr. diam. $\frac{5}{16}$". *087.* Small ring-shaped; prob. stone, black. Diam. $\frac{1}{4}$". *088.* Small drum-shaped; much corroded dark paste. Diam. $\frac{1}{4}$". *089–97.* Cube-shaped, ring, drum, &c.; white shell. Gr. diam. $\frac{5}{16}$". *098.* Cube or sphere; pale buff opaque paste with remains of superficial millefiori pattern, in translucent blue and white. Diam. $\frac{5}{16}$".

Kh. 0189. Misc. frs. of glass, stone, paste, gum, &c. Gr. M. $\frac{9}{16}$".

Kh. 0190. Pottery fr., from upper edge of small vessel; prob. a crucible used for melting lead. $\frac{3}{4}$" × $\frac{3}{4}$" × $\frac{1}{16}$".

Kh. 0191. Misc. seeds, grain, fruit-stones, peas, stalks, &c.

Kh. 0192. Misc. iron frs.; thin sheet, twisted and folded. Gr. M. $1\frac{1}{4}$".

Kh. 0193. Misc. glass and paste beads; small spherical and ring-shaped; black, grey, yellow, green, and turquoise. Gr. diam. $\frac{1}{4}$".

Kh. 0194. Misc. frs. of metals, including lead ore, gold (?), silver, iron, &c., all small. Gold piece shows fine soldering. Gr. M. $\frac{9}{16}$".

Kh. 0196. Fr. of silver ornament. Round a short tube nine minute grains soldered to tube and each other. Diam. of tube 1/32", diam. of grains 1/64"; total diam. 3/32". Length of tube *c.* 1/32".

Kh. 0197. Frs. of lead sheet, rod, foil, wire, &c. Prob. waste scraps from jeweller's or silversmith's workshop. Gr. M. 1 3/32".

Kh. 0198. Mass of frs. of copper wire of many different gauges; some twisted into close spirals, others into cable. Gr. length of cable 1 1/2".

Kh. 0200. Mass of bronze and copper scraps. Gr. M. *c.* 1" sq.

Kh. 0201. Frs. of bronze ornaments and fittings; rings, studs, tags, rod, &c., mostly broken and corroded. Gr. fr. 1" × 3/4".

Kh. 0243. Misc. bronze frs., including pieces of plate, loop (of wire, doubled), sq. knob, ring, pins, and fr. of rivet-plate. Gr. M. 1 1/8" × 3/4".

Kh. 0244. Fr. of bronze ornament. Front, a raised central rib with blade on each side having edge cut lunette shape; unbroken horn suggestive of ram's head in low relief. Both ends and one side broken away. Back flat. Cf. *Ser.* iv. Pl. VI. Yo. 0091. b. 1" × 1 1/4". Pl. X.

Kh. 0245. Tongue of brass buckle: tapering to blunt point. Loop broken. 2" × 1/32" × 1/2".

Kh. 0246. Two frs. of bronze ring, elliptical section. Arc. *c.* 2", thickness 3/16".

Kh. 0247. Rectang. bronze tag for strap-end. Two outer angles rounded. Edges of front plate turned towards back to form box. Back plate flat, fastened to front by two rivets. 1 3/16" × 1/2" × 3/16".

Kh. 0248. Bronze cube, each face divided into four squares by two grooves. Angles rounded. Prob. a weight. Side 1/4".

Kh. 0249–50. Two bronze spinning-whorls; echinus-shaped, concave on under-side. Pierced with large hole. 3/16" × 1/2" and 3/32" × 3/4". Pl. X.

Kh. 0251. Globular lead pellet, showing slightly projecting mould ribs. Diam. 5/8". Pl. X.

Kh. 0252–5. Four lumps of shell, approximately spherical, pierced for use as beads. Diams. *c.* 3/4", 5/8", 7/16", 1/2".

Kh. 0256. Bronze 'cat'-bell. Suspension ring broken. Diam. 1/2". Pl. X.

Kh. 0257. Shell disc, with two small holes drilled from side to side parallel to faces. On one face a ring of six small shallow circular depressions surrounding a central one. Diam. 1/2", thickness 1/8". Pl. X.

Kh. 0258. Oblong bony object formed from an animal's tooth. Long surface striated, and ends showing convolutions. Polished. 1 1/4" × 1/2" × 3/16".

Kh. 0259. Ivory charm. Upper edge shorter than lower, the two sides diverging equally downwards. Upper third tubular for cord, inward curve of tube at its lower side forming shallow transverse channel on front and back. Section wedge-shaped, with circular section at top and rounded point at opposite end. 15/16" × 9/16" × 3/16". Pl. X.

Kh. 0260. Paste bead, millefiori, marbled in red, yellow, blue, and black. 1/2" × 5/16". Pl. X.

Kh. 0261. Stone charm; irregular wedge-shape. White with pale blue markings at broad end. Drilled at narrow end. 1/2" × 5/16" × 3/16".

Kh. 0262. Fr. of stone charm, representing duck. Dark grey, well polished, and drilled for cord. Cf. Ark. Han. 021. 1/2" × 3/8" × 3/32".

Kh. 0263. Stone bead, irregular elliptical flat, drilled near one end. 1/2" × 1/2" × 3/16".

Kh. 0264. Fr. of garnet (?) bead, highly polished. 5/16" × 1/4" × 3/32".

Kh. 0265. Bronze ornament: almond-shaped pendant, prob. to hang on strap or other band. Raised centre and roll border. Square loop at upper end, in which is copper band for attachment. Hollow copper filled with spelter. Flat back, riveted to front at centre of upper margin of almond. Traces of gilding on front and edges. 1 1/4" × 1 3/16" × 1/4".

Kh. 0266. Irregular lump of metal, resembling antimony, or a hard spelter. 1" × 3/4" × 1/2".

Kh. 0267. Stucco relief Buddha head, over life-size (presented by Mr. K. Moldovack). Usual Buddha type with narrow slanting eyes. Uṣṇīṣa and ears lost, and end of nose; face otherwise in fair condition. Hair indicated by wavy incised lines, not by applied curls. Fine clay of light buff colour. H. 1', gr. width 9". Pl. VIII.

OBJECTS COLLECTED BY BADRUDDIN KHAN FROM DIFFERENT KHOTAN SITES

Badr. 09. Fr. of handle of terra-cotta vessel; straight, elliptical in section, main portion representing long flat body of a dragon-like animal, whose back-thrown head forms lower end. Forepaws broken off short, prob. formed lower attachment to vessel. Jaws open, with line of deep punched holes emphasizing line of upper and lower jaw, and suggesting eyes and nostrils. Incised dashes on body to represent fur. Fair condition. Length 2 3/4", average width 3/4", average thickness 1/2". Pl. III.

Badr. 010. Terra-cotta monkey, 'owl' type, rudely made; head turned over R. shoulder; arms and legs broken off. H. 3/4".

Badr. 011. Terra-cotta monkey, 'owl' type, body and head only; prob. one of a pair embracing, as *Ser.* iv. Pl. III. Yo. 002. h. Rudely made. H. 3/4".

Badr. 012. Terra-cotta monkey-head; snout uplifted. Rude work. Gr. M. 1 1/4". Pl. III.

Badr. 013. Terra-cotta ram's head, broken off at base of neck. Solid; perhaps thumb-rest of jug-handle. Eyes,

punched circles; fleece indicated by punched holes. L. horn lost. Gr. M. 1⅝". Pl. III.

Badr. 014–15. Two beast-head spouts from terra-cotta vessels. Broken. *014*. Ram's head, muzzle, and R. horn lost; cf. Yo. 085. *015*. Crude horse-head, with hogged mane. Small orifice only in each, 1/16" and ⅛" diam. respectively. Gr. M. 1⅛". Pl. III.

Badr. 016. Terra-cotta grotesque beast-head; flat, with bulging eyes and long narrow muzzle marked on top with short transverse incisions. No ears or horns remain. Semicircular ridge above eyes. Incised bands under throat, orn. with incised dashes or depressed circles, suggesting harness; and tongue protruding at L. corner of mouth. Traces of green glaze. Fair condition. Length 2". Pl. III.

Badr. 017. Fr. of terra-cotta quadruped, camel (?), kneeling with load. Traces only of latter remain. Head, hind quarters, and upper part of back lost. Eroded. Gr. M. 1½".

Badr. 018. Terra-cotta ring-handle, broken off vessel. Plain, smooth; triangular in section. Diam. (external) 1⅜", (internal) ⅝".

Badr. 019. Terra-cotta appliqué jewel orn., from vessel. Elliptical, with plain boss in middle, surrounded by pearl border, as on *Ser.* iv. Pl. IV. Yo. 01. a, &c. ⅞" × 9/16".

Badr. 020. Fr. of terra-cotta relief orn., indeterminate. Gr. M. ⅞".

Badr. 021. Terra-cotta appliqué mask; lion-head as Yo. 058. a–j, but small size. Broken off close round face. Much worn. H. 13/16".

Badr. 022. Terra-cotta relief head, female (?), with elaborate head-dress and long locks spreading by side of face; resembles *Ser.* iv. Pl. III. Yo. 0026, but on smaller scale and details much worn. Surface glazed. H. ⅞". Pl. II.

Badr. 023–6. Four stucco relief heads of Buddha, small size, from same mould; prob. from plaques. Best preserved, and with fr. of halo, 026; others worn. Burnt. H. ⅞" to 1".

Badr. 027. Stucco relief head of Buddha, as Bal. 061, 086. Remains of white paint on face and black paint on hair. White plaster. Much worn. H. 1½".

Badr. 028. Terra-cotta relief head, of Gandharvī type; cf. Bal. 075, &c. Hair in top-knot, with fillet; ears apparently normal. Broken off close round face; corroded. H. 1⅛". Pl. II.

Badr. 029. Fr. of terra-cotta face-mask; nose, mouth, chin, L. cheek, and eye. Smooth and rounded. Eye long, narrow, and slightly oblique, marked only by incised outline and punched dot for pupil. Straight incised line for mouth with deeply punched hole at corner, and similar holes for nostrils. Incised vertical groove down chin, and wide incised line under it. H. 1⅝". Pl. V.

Badr. 030. Fr. of stucco relief face; nose only, with adjacent parts of cheeks and well-formed mouth. Nose long and fine, short upper lip. Traces of light paint. Cf. Badr. 0283. Burnt. H. 2¼". Pl. III.

Badr. 031. Fr. of terra-cotta relief orn. Lotus-petal, two-lobed, as *Ser.* i. p. 144, A. T. 0051, &c.; traces of paint. Burnt. Length (incompl.) 2¼".

Badr. 032. Stucco relief fr. Seven-petalled rosette, with circular boss centre, resting on pair of voluted leaves; exactly as *Ser.* iv. Pl. VIII, A. T. i. 0012. Burnt. 2" × 1¾". Pl. V.

Badr. 033. Fr. of terra-cotta vessel, slightly concave from top to bottom, prob. from base of neck; orn. with two small appliqué dancing figs. That on L. lost below waist; leaning forward with outstretched arm and swinging some obj. in hand.

Fig. on R. complete; jumping with crossed legs in spirited movement, and holding obj. on head with both hands. Clothes not marked except two ends of drapery swinging out from shoulders. Figs. polished by friction. Cf. *Anc. Khotan*, ii. Pl. XLV, Kh. 003. e.

Potsherd broken away in straight line above, over shallow incised horizontal groove; and on other edges. 1¾" × 2¼" × ¼". Pl. II.

Badr. 034–5. Two frs. of terra-cotta plaques, showing Buddhas seated in meditation; as Yo. 0133, &c.; also *Ser.* iv. Pl. VIII, A. T. iii. 0089, and Pl. XV, Kha. 05. Lower part only of 034 preserved, from hands down; and whole fig. of 035 without head. 035 also corroded. H. 1¼" and 1⅞".

Badr. 036. Terra-cotta grotesque sheep-head; same type as Yo. 086. a–f, and evidently from similar handle. Moulded in two halves and joined; wool marked by rows of incised crescents. Eroded. Length 2".

Badr. 037. Terra-cotta relief woman's head, with fr. of potsherd attached. Moulded in high relief; small features. Hair parted in middle and drawn in smooth bandeaux down sides of forehead. Large earrings, or bunches of hair, at ears. Much corroded. H. 1⅝", width 1½", projection 1¼". Pl. V.

Badr. 038–40. Three frs. of stucco relief orn., in form of simple lozenge, with incised groove running inside and close to edge and plain field. 039 covered with light paint; traces of paint on others. Burnt. Cf. *Ser.* i. p. 146, A. T. i. 0037. (Lozenge) 1 7/16" × 1¼".

Badr. 041. Fr. of stucco appliqué rosette; eight petals (five remain) with circular pierced centre; cf. *Ser.* i. p. 144, A. T. 0060. Traces of white paint. Burnt. Diam. 1 3/16".

Badr. 042. Flat strip of stucco, roughly pinched into shape with fingers when wet. Burnt. 1⅜" × 1⅝".

Badr. 043. Fr. of stucco relief orn., stalk of flower orn. as *Ser.* iv. Pl. VIII, A. T. ii. 0041 (see i. p. 142 for descr., A. T. 0020); expanding into two lobes at bottom, but straight. Burnt. 1⅞" × (gr. width) 1⅝".

Badr. 044–52. Nine frs. of stucco meandering band, moulded in continuous close zigzag emphasized by deeply incised parallel lines, as *Ser.* i. p. 146, A. T. i. 0075, &c. Burnt. Gr. length (048) 2¼".

Badr. 053. Fr. of stucco relief orn., from apex of triangle carrying crescent, as *Ser.* i. p. 143, A. T. 0033. Triangle edged with bead border between raised lines. Traces only of crescent, traces of light paint. Burnt. 1¾" × 1".

Badr. 054–5. Two frs. of stucco relief orn., from straight band edged with bead border between raised lines, and orn. with circular jewels. Cf. *Ser.* iv. Pl. IX, A. T. 0095. Grey clay. Burnt. 1 5/16" × 1¼" and 1" × ¾".

Badr. 056. Stucco relief fr. Part of rosette with seeds hanging in cascade from centre; as *Ser.* iv. Pl. VIII, A. T. v. 0039. Cf. also above Yo. 04, 031. Pl. I. Traces of light paint. Burnt. 1¾ × 1¼". Pl. V.

Badr. 057. Stucco relief orn. Quatrefoil rosette, with raised circular centre and deep central groove down each petal. Remains of white paint. Burnt. ⅞" sq. Pl. X.

Badr. 058. Stucco relief fr. End of lotus-petal, two-lobed, as Badr. 031, but on smaller scale and pointed. Burnt. 1¼" × 1".

Badr. 059. Stucco relief fr. Fleur-de-lis head from floral orn., as *Ser.* iv. Pl. VIII, A. T. v. 0049. Burnt. 1 1/16" × 1¼".

Badr. 060–1. Two stucco relief frs. (joined), of hair moulded in two bands of crescents, reversed in alternate bands, as *Ser.* i. p. 146, A. T. i. 0030, &c. Burnt. 1¾" × 1¼".

Badr. 062. Stucco relief fr., human L. ear, tip broken off. Painted, prob. pink. Burnt. Length 1 5/16".

Badr. 063. Stucco relief fr. Small conical curl of hair, moulded in spiral. Burnt. H. 5/16", diam. of base 5/16".

Badr. 064. Stucco relief fr. Snail-shell curl of hair, with remains of light paint. Burnt. H. ⅞", diam. 1¼".

Badr. 065. Stucco relief fr. Curled first and second fingers of L. hand, with transverse hole running inside curve. Back not moulded. Burnt. Gr. M. 1¾".

Badr. 067–8. Two stucco relief frs., of seated Buddha plaques, as Badr. 034–5, &c. Lower part only, showing folded hands and crossed feet. Grey clay; probably burnt. Traces of light paint. Gr. M. 1¼".

Badr. 069. Fr. of carved wooden plaque (stated to be from Khadalik), prob. vesica from wooden statuette. Shows at top part of vesica's outer border of creeping flame; below, section from R. half of circular halo. Latter has border of elliptical jewels, surrounded by beads and separated by groups of three stalks or leaves tied in by band at middle. Field covered with narrow waving flames, radiating for small quatrefoil rosette within raised circle, preserved just by broken edge.

Above this rosette are two lozenge-shaped jewels within bead borders, placed one above the other among the flames. Both rosette and these may be part of orn. on head of fig. Fine relief work and in good condition. H. 4¼", width 1¼", thickness 5/16". Pl. IX.

Badr. 070. Small pottery jug, with handle. Plain rim without spout. General shape as *Ser.* iv. Pl. IV, Yo. 0060, but shorter and more squat. Grey clay, no orn. H. 2¾", gr. diam. 2". Pl. V.

Badr. 071. Stucco relief fr., of acanthus foliage. Fine work. Hard plaster as Chal. 08, &c., burned grey. Gr. M. 2". Pl. V.

Badr. 072. Fr. of terra-cotta vessel. Sloping shoulder orn. with incised lines (pattern preserved only fragmentary) and showing base of handle (broken off), with eroded appliqué animal head orn. below. H. 2 5/16". Pl. III.

Badr. 073. White agate (?) **bead,** oval. Length 5/16", gr. diam. ¾".

Badr. 074. Half of bronze ring, round in section, corroded. Diam. 2", thickness 3/32".

Badr. 075. Painted wooden panel, with arched top, one edge broken off. *Obv.* Buddha in black robe orn. with conventional yellow spots, seated in meditation on red Padmāsana. Oval halo and vesica with bead borders, in red, white, and yellow. *Rev.* traces of similar Buddha in white robe. Both sides much effaced. Gr. h. 7¼", width 2⅜". Pl. XIII.

Badr. 097–9. Three frs. of glass, green, translucent, but not clear. 098 flat fr., 097 and 099 frs. of rods, solid and hollow respectively. Gr. M. ⅞".

Badr. 0100. Bronze spinning-whorl (?); dome-shaped with flat top, large hole pierced vertically, slightly concave on under-side. Good condition. H. ¾", diam. of base 1⅛", diam. of hole ⅜".

Badr. 0101–3. Three frs. of bronze wire, round in section. Corroded. Gr. length *c.* 2¼", diam. *c.* 1/16".

Badr. 0104. Fr. of bronze belt-catch (?). Ribbed end-piece, flat, oblong, with one curved pin projecting at right angles broken off short, and signs of another (foot). Corroded. Gr. M. 1⅜".

Badr. 0105. Fr. of bronze, tapering, corroded. Length 7/16".

Badr. 0106. Fr. of bronze ring, smooth, elliptical in section. Slightly corroded. Arc 1¾", gr. thickness 3/16".

Badr. 0107. Fr. of bronze slag. Gr. M. 1 3/16".

Badr. 0108. Bronze tip for strap (?). Shield-shaped, made in two pieces (back and front); front with receding edges, forming hollow behind; back flat, attached to front by rivets but apparently allowing strap or other object to pass out between edges at top of shield. Well made but corroded. H. 1⅜", gr. width 1 1/16", thickness 3/16".

Badr. 0109. Bronze buckle-ring and catch for strap. Ring, thick, D-shaped. Catch, a shield-shaped plate, with double hoop passing round tongue-bar of ring to back-plate. Back and front plate joined by rivet. Tongue of buckle lost. Length 1¼", diam. of ring ⅞". Pl. X.

Badr. 0110. Circular bronze boss, hollow, top moulded in form of conventional six-petalled rosette. Good condition. Diam. $1\frac{3}{8}''$, h. $\frac{3}{4}''$. Pl. X.

Badr. 0111. Bronze buckle-ring and catch. Ring, thick, nearly round, lozenge-shaped in section. Catch, a shield-shaped plate with double hoop passing round tongue-bar of ring to back-plates, and single rivet joining front and back plates. Remains of head of iron tongue between hoops of catch. Cf. Badr. 0109. Length $1\frac{1}{4}''$, diam. of ring $1\frac{1}{16}''$. Pl. X.

Badr. 0112–3. Bronze spoon handle. Flat, wedge-shaped; broad end notched on obv. edge, narrow end expanding again where it joined bowl. Back plain. Front orn. with raised central rib, incised line by each long edge, and across broad end two pairs of incised lines with row of circle and dot orn. between. Fair condition but broken in two. Length $5\frac{3}{4}''$, gr. width $1\frac{1}{4}''$, thickness $\frac{3}{16}''$. Pl. X.

Badr. 0114. Bowl of bronze spoon, large size, pear shape with beginning of handle (broken off). Handle flat, set at wide angle with bowl, beginning with slight waist, and expanding to $\frac{3}{4}''$ width. Hole worn through bowl. Length of whole $3\frac{1}{2}''$, bowl $2\frac{1}{2}'' \times 1\frac{1}{8}''$. Pl. X.

Badr. 0115–16. Frs. of two bronze pick-axes, ornamental or ceremonial. *0115* has long barrel-shaped vertical ferrule between head and point. Head is formed of grotesque boars' heads, one behind the other, facing ferrule, the outer or rear one fused by its snout to back of neck of inner one. Inner one has its snout buried in about middle of side of ferrule, and apparently reappearing as the long square-sectioned point on the other side.

Boars' heads are roughly modelled and the large jaws fringed with hair or bristles. Ears small and upright; crest pointed; eyes round. At angles of mouth are two risorial furrows. Under-side shows depression between jaw-bones. Square-sectional point of pick has its diagonals vertical and horizontal. Tip missing. Ferrule is closed at top, and its wall is broken at one side at bottom.

0116 has only one beast-head which probably faces away from ferrule. Hair-marking not visible. Two furrows curve forward round neck under jaws and up centre of face (?) to ears. Ferrule closed at top; side and lower end missing. Pick point missing.

Both specimens rather roughly cast. Bronze-brown patina with patches of green. *0115*. Length over all $3\frac{3}{4}''$, present length of point $1\frac{3}{4}''$, vertical thickness through heads $1\frac{1}{8}''$, length of ferrule $1\frac{1}{8}''$. *0116*. Length of fr. $1\frac{5}{8}''$, vertical thickness $\frac{3}{4}''$, present length of ferrule $1\frac{1}{8}''$. Pl. X.

Badr. 0117. Bronze button; round, with flat centre and edge recessed in two planes. Pair of large loops behind for attachment. Good condition. Diam. $\frac{7}{8}''$, projection of loops $\frac{3}{8}''$. Pl. X.

Badr. 0118. Fr. of bronze plate: flat, and relatively long for width, with one end rounded off, and sides in concave curve expanding to width of $\frac{1}{2}''$ at other end. Length $\frac{9}{16}''$, width $\frac{1}{4}''$ to $\frac{1}{2}''$.

Badr. 0119. Small bronze bar, with sq. block in middle showing small depression in two opposite sides. One end of bar is club-shaped; other end forms small hollow hemisphere. Length of whole $\frac{7}{8}''$. Pl. X.

Badr. 0120. Bronze stud, with thick disc-shaped head, hollow and filled at back with lead, and long pin cut off sq. at end. On head, within plain line border, is design of broken curving and spiral lines. Fair condition. Diam. of head *c.* $\frac{5}{8}''$, thickness *c.* $\frac{3}{16}''$. Pl. X.

Badr. 0121. Bronze seal; flat, sq., with pierced shank at back. Intaglio device, a four-legged beast (dragon ?) standing with uplifted head in profile to L. Some object possibly under forefeet. Plain line border round. Corroded; *c.* $\frac{11}{16}''$ sq. Pl. X.

Badr. 0122–8. Seven glass beads; ring-shaped, blue, green, or dark grey, transparent and opaque. Gr. diam. $\frac{1}{4}''$.

Badr. 0129. Carnelian seal; flat, circular, with edge bevelled both to back and front. Intaglio device of antlered deer standing in profile to L. Rather rough work. Good condition. Diam. $\frac{5}{8}''$. Pl. X.

Badr. 0130. Fr. of talcite, prob. intended for bead. Gr. M. $\frac{1}{2}''$.

Badr. 0131. Misc. stone and glass frs., &c., comprising one red carnelian bead; one turquoise paste bead; one yellow paste; one green translucent glass; one brown paste with wavy yellow line round middle; also fr. of white stone or paste (?) bead with turquoise-coloured film on surface in places (cf. Badr. 0188), and two broken sticks of coral. Beads ring-shaped or cylindrical. Gr. diam. $\frac{5}{16}''$.

Badr. 0132. Small basin-shaped stone object, of black and green marbled stone, with short pedestal cut off sq. Hole pierced upwards through pedestal and bottom of basin. Edges slightly chipped, but condition good. H. $1\frac{1}{8}''$. Pl. V.

Badr. 0134. White jade (?) pendant, in form of monkey (?) sitting on hind quarters, with body erect, head sunk on breast, forepaws under chin, and tail over R. shoulder. Width of shoulders exaggerated, making wedge-shaped fig. tapering to ground. Tip of nose and R. hind leg broken off.

Crude work without detail; fur indicated by incised dashes on limbs and tail in front, and parallel bands of the same across back. Latter is cut flat, except for two low oval projections in position of shoulder-blades; perhaps intended to keep surface of fig. from rubbing against other surface when in use. Slanting hole for suspension pierced through middle of hunched shoulders above head. Length $1\frac{5}{8}''$, gr. width $1\frac{3}{16}''$, gr. thickness $\frac{1}{2}''$. Pl. V.

Badr. 0135–9. Five stone or clay spinning-whorls. *0135* and *0136*, black stone, echinus-shaped; 0135 flattened on top, and with flat bottom to which side is bevelled; *0136*, with flat bottom, bevelled round lower edge of hole; *0137*, grey clay, of flat echinus shape, sides turning in

towards bottom which is concave, orn. with slanting incised lines round in-drawing part of side and with seven-pointed star on bottom round hole; *0138*, light grey clay, flat echinus shape, approaching ring-shape; *0139*, mottled grey pebble, dome-shaped with flat base. Gr. diam. (*0135* and *0136*) 1⅛″, gr. h. (*0135*) ⅞″. Pl. V, X.

Badr. 0140. Stone seal, hard yellowish-white. Four-sided, and roughly pyramidal in shape; apex rounded over, and hole pierced through horizontally for suspension string. Fret device cut on face; practically replica of *Ser.* iv. Pl. V, Yo. 0089. Face *c.* 9/16″ sq., h. 9/16″. Pl. X.

Badr. 0141. Splinter of hard white stone, jade (?). Gr. M. 1 5/16″.

Badr. 0142. Tapering rod of pale green stone, jade (?); broken both ends. Length 1 9/16″, gr. diam. 3/16″.

Badr. 0143. Glass bead; spheroid flattened laterally, honey-coloured, semi-translucent. Diam. 5/16″.

Badr. 0144. Slab of black stone; smooth and very hard. In shape, an oblong with one long side bowed. Back unpolished, showing three groups of holes for attachment of stone to some object. Holes were drilled in pairs, those in each pair slanting to meet each other and making V-shaped channel for passage of wire. Bridge between holes has broken in most cases, and new holes have been made. 1½″ × ⅝″ to 1¼″ × ¼″.

Badr. 0145. Fr. of lignite (?) seal; flat, sq., with hole pierced horizontally for suspension. One broad face preserved with crude incised device of long-legged beast (standing). Cf. *Ser.* iv. Pl. XXIX, N. XXIX. 006. Remains of design on fr. of other face, unintelligible. Face ⅝″ sq., thickness ¼″.

Badr. 0146. Pendant of black stone, very smooth, hard, and polished; four-sided, two of the sides making elongated narrow angle and two a short wide angle. Edges finely bevelled, both back and front; the level disappearing towards meeting-point of long sides, where the edge is cut down sq. and stone pierced laterally for suspension. Well made. Gr. length 1¼″, gr. width 1″, thickness *c.* ¼″.

Badr. 0165. Small bronze disc, prob. weight. Traces of intaglio device on one side (?). Diam. 5/16″, thickness ⅛″. Pl. X.

Badr. 0166. Fr. of bronze slag. Gr. M. 13/16″.

Badr. 0167. Bronze stud, having short, wide, shield-shaped head with bevelled edges. Hollow behind, with short pin on which is sq. washer. Fair condition. ⅝″ × ⅝″.

Badr. 0168. Bronze strap-end, from buckle; cf. Badr. 0109, 0111. Long narrow plate, with long sides concave and one end pointed. Edge bevelled along these three sides. From other end springs double hoop (broken), which passed round tongue-bar of buckle. Plate cut away between hoops to give free play to tongue. Three holes for rivets, 1/32″ in diam. Back plate lost. Fair condition. Length 1¼″, width 5/16″ to ⅜″. Pl. X.

Badr. 0169. Misc. frs. of bronze wire, bent into rings, loops, &c. Gr. diam. (ring) ⅝″, gr. thickness 3/32″.

Badr. 0170–85. Sixteen frs. of agate, of various tints, weather-worn. Gr. fr. 1⅛″ × ⅞″ × ⅜″.

Badr. 0186–7. Two frs. of crystal (?), weather-worn. Gr. fr. ⅝″ × ½″ × ⅜″.

Badr. 0188. Fr. of glass (?); surface covered with opaque patina, partly verdigris in colour. Cf. Badr. 0131. 9/16″ × 9/16″ × ⅛″.

Badr. 0191. Iron 'Koftgārī' button, with large loop shank. Circular, flat, scored in two directions to hold silver-foil pattern. This consists of outer and inner circle, the inner circle divided by its diagonals into quadrants, and each quadrant containing an inner quadrant treated as angular spiral. Fair condition. Diam. 1⅛″.

Badr. 0192. Bronze seal, oblong, rectang., with large loop at back roughly soldered on. Device: at bottom a circular eight-petalled rosette; above, two vertical divisions side by side, in one of which is line of Chinese lapidary chars., in other a continuous scroll orn. A line borders bottom and two sides. Seal has been broken across and soldered together again. Otherwise in good condition. 2⅛″ × 1 3/16″.

[Note by Mr. L. C. Hopkins.—The right-hand panel contains three Chinese characters, sufficiently disguised to make them very puzzling. At first I supposed them to read 天先非, *t'ien hsien fêng*, viz. Heaven—first, or prior—elegant. I can see no sense in such a sequence.

But it will be noticed that the whole of the lower part of the face is occupied by a circular design, divided on its inner margin into eight segments. This strongly suggests the diagram of the arrangement of the 八卦 *pa kua* or Eight Symbols, according to the system attributed to Fu-hsi, and known as the 先天圖 *hsien t'ien t'u*, or 'Earlier System' of the Symbols. Hence it is possible that the first two characters are to be read as *hsien t'ien* 先天, and not *t'ien hsien* 天先. But I can make no suggestion as to the third character in such a connexion. It cannot be 圖 *t'u*.]

Badr. 0193. Bronze seal, rectangular, with small broken loop at back. Device: striding demon or warrior to L. p., in long robe and carrying spear (?); stole fluttering upward. Below, horizontal Vajra (?). Fair condition. 1⅛″ × ⅞″. Pl. X.

Badr. 0194. Bronze seal, rectangular, with three chars. (?) within line border. Pierced shank at back. Fair condition. 1¼″ × ¾″.

Badr. 0195. Bronze seal, heart-shaped, with long shank (pierced). Device: trefoil anthemion enclosed in double border lines. Somewhat corroded. ⅞″ × 1″. Pl. X.

Badr. 0196. Fr. of bronze ring, with fine blue glass jewel in four-claw setting. Most of hoop missing; corroded. Length 1⅜″, gr. width 9/16″. Pl. X.

Badr. 0197. Steatite fig. of monkey, seated, with hands between knees, chin on hands, and back rounded. Naturalistic. Drilled vertically. 15/16″ × ½″ × 7/16″. Pl. V.

Badr. 0203. Carved wooden finial, or halo from statuette (said to be from Toghrak-mazār). Disc-shaped, with plain round centre slightly raised, from which close-set V-cut grooves radiate to circumference. Back plain. Remains of tenon, $1\frac{1}{8}$" wide, below (broken off). Diam. $4\frac{7}{8}$" × $4\frac{3}{8}$", thickness $\frac{7}{16}$".

Badr. 0204. Long flame-shaped fr. of white jade (?); curved, with small hole drilled at base, well made. Length $1\frac{1}{8}$", gr. width $\frac{7}{16}$", thickness $\frac{3}{32}$". Pl. X.

Badr. 0205. White jade (?) ring; circular, quadrilateral in section; sides expanding slightly to one edge. Diam. of ring *c.* $\frac{5}{8}$", average thickness $\frac{3}{32}$".

Badr. 0206. Fr. of crystal bead; spheroid, chipped, and with one side split off. Diam. $\frac{5}{8}$".

Badr. 0207. Two carnelian beads; red, flattened spheroid and ring-shaped, chipped. Gr. diam. $\frac{5}{16}$".

Badr. 0208. Misc. stone and glass beads and frs., comprising: one ring-shaped bead of blue glass (iridescent), diam. $\frac{1}{4}$"; one white shell bead, spheroid, diam. $\frac{5}{16}$"; one tubular agate bead, white and brown, length $\frac{7}{16}$", diam. $\frac{1}{4}$"; two irregular frs. of garnet (?) pierced, gr. m. $\frac{3}{16}$".

Badr. 0209. Carnelian bead; cylindrical, tapering to each end; deep red to grey, one end chipped. Length 1", gr. diam. $\frac{7}{16}$".

Badr. 0210. Hollow bronze (?) ball, with large hole pierced through opposite axes. Diam. $\frac{9}{16}$", h. $\frac{7}{16}$".

Badr. 0211. Two garnets or rubies; one pear-shaped; the other, an elliptical cone smoothly cut, with flat base. Lengths $\frac{5}{16}$" and $\frac{3}{16}$".

Badr. 0212. Glass bead; opaque lapis lazuli blue; large spheroid with sides cut in twelve facets, and axes left round. H. $\frac{1}{2}$", diam. $\frac{9}{16}$" to $\frac{5}{8}$".

Badr. 0213–21. Nine frs. of bronze; perhaps all from vessel. 0214–18 are curved frs. of rim, slightly thickened and in-turned; orn. outside with two pairs of fine incised annular lines. 0213 and 0220, plain frs. slightly curved; 0219 flat; 0221 very slightly curved with raised rib on outside; corroded. Gr. M. (*0213*) $2\frac{3}{4}$", gr. length of rim (*0214*) $1\frac{11}{16}$", average thickness $\frac{1}{16}$".

Badr. 0222. Bronze spinning-whorl; echinus-shaped, concave on under-side. Fair condition. H. $\frac{7}{16}$", diam. $\frac{7}{8}$".

Badr. 0223. Bronze strap-attachment (?). Rectang. piece of plate, with receding edges making hollow back. Short pin at each corner behind, and oblong opening through plate by one edge. Sand-encrusted. $1\frac{1}{4}$" × $1\frac{3}{16}$".

Badr. 0224. Bronze finger-ring, very small, with circular cup setting for jewel (empty). Diam. of ring $\frac{1}{2}$".

Badr. 0225. Stucco relief fr.; long plano-convex, widening slightly to one end which is rounded. Other end broken. White stucco, burnt hard as Chal. 08; Badr. 071, Pl. V; 0226–30. Length $1\frac{1}{2}$", gr. width $\frac{1}{2}$".

Badr. 0226. Stucco relief fr.; thin flat piece, relief pattern consisting of two pairs of scrolled leaves issuing from opposite sides of transverse cincture. At one end of cincture another leaf scroll. Broken away on all sides. Cf. Badr. 0228. White stucco, burnt hard as Badr. 0225, &c. $1\frac{11}{16}$" × $\frac{15}{16}$".

Badr. 0227. Stucco relief fr. Small L.-hand (?) fingers extended close together and bent slightly back; thumb gone. Broken off half-way up back of hand. Palm and inner side of fingers not modelled. White stucco, burnt hard as Badr. 0225, &c. $1\frac{1}{4}$" × $\frac{5}{8}$".

Badr. 0228. Stucco relief fr. of foliate orn. Pair of conventional leaves curling upon themselves; similar to Badr. 0226. Good work. White stucco, burnt hard as Badr. 0225, &c. $\frac{15}{16}$" × $1\frac{1}{4}$".

Badr. 0229. Stucco relief fr. Flat spiral curl of hair. White stucco, burnt hard as Badr. 0225, &c. Diam. $\frac{13}{16}$" to $\frac{15}{16}$".

Badr. 0230. Stucco relief fr.; of long curving frond-like leaf with deeply serrated edge. White stucco burnt black and hard like the preceding. $1\frac{3}{4}$" × $\frac{13}{16}$".

Badr. 0231. Terra-cotta relief fr. Six-petalled rosette, apparently rising from voluted pair of leaves as *Ser.* iv. Pl. VIII, A.T. i. 0012, but leaves broken off short. $\frac{7}{8}$" × $\frac{5}{8}$".

Badr. 0232. Terra-cotta relief fr. Cast of L. side of head of sheep or camel, as Yo. 071, 095. Very crude. Length $1\frac{3}{4}$".

Badr. 0233. Stucco mould, for single flat spiral curl as Badr. 0229. Stucco burnt hard and black as Badr. 0230. Diam. $\frac{7}{8}$".

Badr. 0234. Stucco relief fr. Flat spiral curl as from 0233, but smaller. Grey clay, burnt. Diam. $\frac{5}{8}$".

Badr. 0235. Soapstone seal; high, four-sided; sides tapering towards top, through which is suspension hole, and orn. with grooves running round horizontally. Device on oblong base; a roughly cut Svastika (?), with one bar of cross double. Lemon-yellow soapstone, encrusted with dirt. H. 1", base $\frac{9}{16}$" × $\frac{7}{16}$".

Badr. 0236. Terra-cotta relief fr. Cast of L. hind leg of camel, with hump, as Yo. 075. Harness not indicated. H. $2\frac{1}{4}$".

Badr. 0237. Lead (?) bar; straight, round in section; tapering slightly towards ends, one of which is flattened and has hole pierced through. Length $2\frac{3}{16}$", average diam. $\frac{3}{16}$". Pl. X.

Badr. 0248. Stucco relief fr. of halo, prob. from standing Buddha. Plain field, inner lotus-wreath border on receding plane, and outer border (on lower plane) of creeping flame. Stucco burnt hard as Badr. 0225, &c., and discoloured black and green. $1\frac{3}{16}$" × $\frac{7}{8}$".

Badr. 0249. Horn spoon; non-Chinese; cut in one piece, with flat handle on same plane as bowl. Latter shallow, oval; cut to fine point at outer end, and with slight shoulder at offset of handle. Handle flat, with sides cut so as to form first (near bowl) an elongated lozenge shape, then a square, then flat bar widening slightly to end.

Inside of bowl orn. with incised pattern of two pairs of bars, crossing each other at right angles so as to form lozenge with projecting arms at each corner. In external angle of each pair of arms is incised leaf. Front of handle similarly orn., square with a St. Andrew's cross, lozenge with quasi-arrow-shaped or wedge-shaped figs. Back plain and smooth. Resembles Scandinavian work. Good condition, but end of handle detached. Length of whole $5\frac{1}{16}$", bowl $2\frac{1}{4}$" × $1\frac{1}{2}$". Pl. V.

Badr. 0250. Stone bead; of black and grey marbled pebble, cut in fourteen facets, with three holes pierced through from opposite axes. Diam. $\frac{5}{16}$" to $\frac{11}{16}$". Pl. X.

Badr. 0251. Black stone pendant; flat lozenge-shaped, with edges bevelled each side. Suspension hole in one corner. $\frac{5}{8}$" × $\frac{3}{8}$".

Badr. 0252. Paste bead: spheroid with flattened axes. Dark red-brown paste mixed with yellow, which produces irregular broken markings over surface. Diam. $\frac{1}{2}$". Pl. X.

Badr. 0253. Bronze seal; sq., with rounded back pierced horizontally. Linear design (?) or Chin. chars. on face; but whole badly corroded and device unintelligible. H. $\frac{7}{16}$", face $\frac{7}{16}$" sq.

Badr. 0254. Bronze seal; elliptical (one edge broken off), with long shank behind pierced at top. Part of curving leaf device remains. Corroded. H. $\frac{5}{8}$", face $1\frac{1}{8}$" × c. $\frac{1}{2}$". Pl. X.

Badr. 0255. Terra-cotta monkey-head; small grotesque, with prominent mouth, and V-shaped fringe marked by grooves as forehead. H. $\frac{5}{8}$". Pl. II.

Badr. 0256. Fr. of bronze plate; thin, slightly corroded. Gr. M. $1\frac{1}{4}$".

Badr. 0257. Bronze tag; made of strip of plate bronze, doubled, with iron rivet through ends. Length (doubled) $1\frac{9}{16}$", width $\frac{3}{8}$".

Badr. 0258. Bronze loop; tyre-shaped, thickened at middle of base, from which projects round knob. Ends slit to take small flat bar forming a 'gate', which was hinged at one end by $\frac{1}{16}$" rivet and pierced at the other for a movable pin, and closed aperture. Well made; good condition. Length $\frac{7}{8}$", gr. width $\frac{1}{2}$". Pl. X.

Badr. 0259. Fr. of curved bronze rod; moulded in spiral, round in section. Arc $1\frac{3}{8}$", thickness $\frac{1}{8}$".

Badr. 0260. Two bronze frs.; small lump, split and corroded, and curved fr. of fine wire. Gr. M. $\frac{5}{16}$".

Badr. 0261. a–b. Two beads; *a*, black paste, spherical, with groove round middle, prob. for inlay; *b* (fr. only), blue glass, translucent, spherical. Gr. M. $\frac{3}{16}$".

Badr. 0272. Fr. of plate bronze, slightly curved, with engraved curved and straight lines on convex side; unintelligible. Gr. M. $1\frac{1}{4}$".

Badr. 0273. Fr. of bronze mirror, with scalloped edge. Parts of outer and inner border, and fr. of field (?) preserved; but not centre. Outer border has raised outer edge following scallop, and sunk field within each scallop on which are rosette and leaves in relief.

Inner border also has relief orn. of flowers and leaves, bounded by raised band on inner side. Thickness diminishes continuously from $\frac{3}{16}$" at outer edge to under $\frac{1}{16}$" at inner edge of fr. Corroded. Gr. M. $2\frac{1}{4}$". Pl. X.

Badr. 0274. Bronze seal; sq., with short broken shank at back. Device: within plain line border, a two-handled vase with two trails of foliage issuing from mouth and hanging to ground upon either side. Corroded. $\frac{5}{8}$" sq.

Badr. 0275. Paste bead; elongated spheroid, opaque black with band of white inlaid round middle. Badly made. Length $\frac{7}{16}$", diam. $\frac{3}{8}$".

Badr. 0276. Cowrie shell. Length $\frac{5}{8}$".

Badr. 0277. Bronze ring; small, flat, prob. corroded Chin. 'cash'. Diam. $\frac{1}{2}$".

Badr. 0278–80. Stucco relief frs. Portions of three hands, prob. from Buddha figs., with curled fingers, and hole pierced horizontally within curve. *0278*. L.-hand fingers, with tip of thumb closed over forefinger; grey clay. *0279*. Two fingers only of L. hand; pinkish clay, on obv. covered with creamy paint. *0280*. Three fingers and part of palm of R. hand; red clay. Back not worked; rough modelling. Cf. *Ser.* iv. Pl. VIII, A. T. v. 0072. Gr. M. (*0280*) $2\frac{1}{4}$".

Badr. 0281. Stucco relief fr. Three extended fingers of L. hand with beginning of back of hand; little finger and thumb missing. Fingers slightly apart, and web (?) left between them. Pinkish clay. 3" × (gr. width) $1\frac{3}{8}$".

Badr. 0282. Stucco relief fr. R. hand with fingers shut on palm and thumb resting on forefinger, as Badr. 0278, but complete. Hole pierced within curve of little finger, but does not come through. Grey clay, burnt. $2\frac{3}{4}$" × $1\frac{7}{8}$". Pl. V.

Badr. 0283. Stucco relief fr.; nose, mouth, chin, and R. cheek of male face with moustache. Finely modelled features of conventional type; long straight nose, short upper lip, well-curved mouth; cf. Bal. 092, &c. Small tuft of moustache, appliqué. Pinkish clay, with remains of white paint. Gr. M. $2\frac{3}{4}$". Pl. III.

Badr. 0284–5. Stucco relief frs. from two faces like the preceding. *0284*. Nose, upper lip, and fr. of R. cheek only; grey clay. *0285*. End of nose, with mouth and chin; modelling accentuated, giving air of determination; pinkish clay. Gr. M. 2". Pl. XI.

Badr. 0286. Stucco relief fr. Head of Buddha; conventional type, modelled somewhat askew. Uṣṇīṣa and ears missing. Pinkish clay. H. 3". Pl. V.

Badr. 0287. Stucco relief fr. Head of Bodhisattva with fr. of rippling ribbon on R. side. Broken off in straight line below nose; top of tiara also missing. Part of fillet and crescent orn. remains on hair, and wavy locks parted on forehead and hanging behind ears. Ears were elongated; eyes oblique. Head in high relief. Pinkish clay. $2\frac{1}{4}$" × $3\frac{1}{4}$" × $1\frac{3}{4}$". Pl. V.

Badr. 0288–90. Three frs. of stucco relief plaques, showing seated Buddha, as Badr. 034–5, &c. Hands covered by fold of drapery. *0288* shows fig. and fr. of rayed halo border, and outer lotus-petal border by R. knee. *0289* shows L. half of fig. and adjacent halo. *0290*, fig. only. All heads lost. Remains of paint (?) on 0288. Pinkish grey clay, burnt. Gr. fr. (0288) 3" × 3¼".

Badr. 0291–2. Stucco relief frs. Parts of two Buddhas seated in meditation, from same mould. Prob. plaques as *Ser.* iv. Pl. VIII, A. T. iii. 0089, but larger size. Arms and body only preserved in 0291; hands exposed. Head, fr. of halo, body, and arms to elbows, in 0292. Halo plain. Pinkish clay. Gr. M. 3¼".

Badr. 0293. Fr. of stucco relief plaque, showing Buddha seated in meditation as Badr. 034–5, &c. Fig. only preserved (with head); finely modelled but much chipped and worn. Light red clay, burnt. H. 3$\frac{5}{16}$".

Badr. 0294. Stucco relief fr. Upper part of head of Buddha with halo, as in 0292. Prob. same mould. Pinkish grey clay. H. 1¾".

Badr. 0295–6. Stucco relief frs. Upper parts of two (seated ?) Buddhas, prob. from plaques as Badr. 0288–90. *0295* same size; *0296* slightly larger. Pink and grey clay. Heads and shoulders only, with part of halo in 0296. Gr. M. 1¾".

Badr. 0297. Fr. of terra-cotta appliqué mask; grotesque human type, with prominent nose, oblique well-opened eye, wide smiling mouth, and bulging cheek. Forehead, lower lip and chin, and whole of L. side of face lost. Spirited modelling, but corroded. 1¾" × 1¾". Pl. III.

Badr. 0298. Terra-cotta appliqué mask; lion-head within circle of curls as Yo. 058. a–i. Degenerate specimen; much worn. 2" × 1⅞" × 1".

Badr. 0299. Stucco fr. Lower lip, chin, and under-surface of human face. Roughly made. 2¼" × 2¼".

Badr. 0300. Fr. of wall of terra-cotta vessel, with circular portion of surface in low relief and rudely modelled in likeness of face to take place of appliqué mask.

Face of grotesque human type, with large eyes drawn to fine point at external angles, short broad nose, and thick mouth slightly grinning. Forehead and cheeks covered with roughly incised dashes usually intended to represent fur. 2¾" × 2¾" × $\frac{1}{16}$" to ½". Pl. III.

Badr. 0301. Stucco relief fr., representing railing. Three uprights extant, joined by two hexagonal rails (on lower plane), and with plain rail or moulding running along bottom and top. Uprights wide and flat, grooved down centre in middle part of their length, the groove forking at each end.

Above and below the points where they intersect the uprights, the surface of the latter slopes backwards, and is covered with semicircular petal-like orn. representing the usual half-lotus common in Buddhist rails rising from cross-bar or rail at top and bottom. Whole railing very slightly curved along top and bottom.

Pink clay with remains of creamy paint on face; impress of grass stalks on rough back. Good condition. Cf. *Ser.* i. p. 115, Yo. 0065. a–g. 2¾" × 4½" × (gr. thickness) 1¾". Pl. III.

Badr. 0302. Fr. of terra-cotta handle, as Yo. 011, 015 (*q. v.*) and *Ser.* iv. Pl. II, Yo. 0057. Curve of whole fr. here, from top to bottom, is convex. Palmette stands away from side of vessel, and junction with latter is effected by flat piece of stucco, turning in at right angles below volute and orn. on under side (?) with row of punched dot and circle orn. Remains of light buff-coloured slip. Good condition. 3¾" × 2¼" × (gr. thickness) 1". Pl. I.

Badr. 0303. Fr. of wall of terra-cotta vessel, orn. with band of vine-leaf scroll moulded in relief. Fine work, somewhat worn. 2" × 2¾" × $\frac{3}{16}$". Cf. Pl. V.

Badr. 0304. Stucco relief fr. Half-round necklace, slightly curved; representing twisted band of (alternately) plain fillet and string of pearls. As K.K.I. 0167, and *Ser.* i. p. 142, A. T. 0019, &c. Red clay, burnt hard. Surface eroded. Length 5", width 1½", gr. thickness 1".

Badr. 0305. Stucco relief fr. Crescent orn. as *Ser.* iv. Pl. VIII, A. T. v. 0017. b, &c. Pink clay, burnt. 2⅝" × 2¼".

Badr. 0306. Stucco relief fr. Flat band, slightly curved, with high rounded moulding at inner edge, and beaded border between plain raised fillets at outer. Field shows moulded relief orn. of circular boss in centre, and four pear-shaped leaves radiating from it in manner of St. Andrew's cross. Between each pair of leaves again is smaller boss.

Whole suggests representation of cabochon jewel ornament of Byzantine type. Raised transverse bar on one side suggests edge of panel. Cf. *Ser.* iv. Pl. IX, A. T. iv. 0032, 0034. Pink clay, burnt. 2¾" × 2". Pl. III.

Badr. 0307. Stucco relief fr., like the preceding, but more sharply moulded and on smaller scale. Transverse bar here occurs in middle of fr., showing repeat of pattern on either side. Five-petalled rosette takes place of central boss, and punched circles of bosses between leaves. 1⅞" × 2". Pl. V.

Badr. 0308. Stucco relief fr. Waved lower edge of drapery, falling in folds. Pink clay, burnt. 2¼" × 2¾".

Badr. 0309–11. Stucco relief frs. Human ears; *0309* and *0310* L. ears, tips lost; *0311* R. ear, upper half only. Pink or grey clay. Gr. length 2¾".

Badr. 0312–15. Four stucco relief frs. Flames, curled in flat spiral, prob. from border of vesica; as *Ser.* iv. Pl. VIII, A. T. v. 0056. Red clay, burnt. Gr. M. 2¾".

Badr. 0316. Stucco relief fr. Part of crescent orn. on top of triangle, as *Ser.* i. p. 143, A. T. 0033, &c. Bead border to triangle. Grey clay. 1¾" × 2".

Badr. 0317. Stucco relief fr. Head, breast, R. shoulder, and upper arm of Buddha. Red clay, burnt hard. Much eroded, and all features of face gone. 2¼" × 1¼".

Badr. 0318. Fr. of stucco relief plaque; as *Ser.* iv.

Pl. VIII, A. T. iii. 0089; but on larger scale, showing remains of two lotus petals, bent R. lower leg of Buddha, and pendent L. foot. Remains of light paint on robe. Red clay, burnt. 2⅝" × 2¼".

Badr. 0319. Fr. of terra-cotta vessel, showing trefoil relief orn. at base of handle, with part of wall adjoining. Centre leaf of trefoil short and broad, ending in wide-angled point; outline emphasized by deep incised line ⅛" within edge; deep groove as midrib, with incised dash either side of it near base. Side leaflets small and narrow, with rounded ends; outlines similarly emphasized, and dash at narrow end. Round base of trefoil a band or collar made of pair of parallel incised lines joined by transverse dashes, from which springs handle proper.

Fine red clay, very hard fired, and with smooth polished surface. 1½" × 2¼". Pl. III.

Badr. 0320. Terra-cotta appliqué orn. Circular, moulded in relief with upper half of Gandharvī full face to spectator, with outspread arms holding up garland. Bead border (incomplete). Much eroded, and all detail lost. For similar fr., see Badr. 0328. Diam. *c.* 1⅞".

Badr. 0321. Stucco relief fr. Surface rounded and scored with incised lines. In one part rises looped curve, nicked on edge, suggesting furry ear of animal, as in Yo. 081, Pl. I. 2" × 1½".

Badr. 0322. Fr. of wall of terra-cotta vessel, wheel-made, showing conventional leaf-tip orn. as Yo. 020-2. Fine red clay, very hard fired. Good condition. 2¼" × 2". Pl. III.

Badr. 0323. Terra-cotta fr., apparently handle of vessel. In form of deer-head, solid, with short straight horns rising in undivided mass above forehead; prominent circular eyes, two incisions for nose and groove for mouth. Similar groove across top of horns.

Rudimentary modelling without detail, but also eroded. Hole pierced horizontally through neck for suspension string, and curved fr. of potsherd at back. Length 2⅞", gr. projection 1¾", gr. width 1⅛".

Badr. 0324. Terra-cotta horse-head, prob. from handle as Yo. 088. a-d, Pl. II, III. R. half only, broken off half-way down neck. Hogged mane, and forelock rising in blunt horn. Dark red clay, eroded. H. 1 5/16".

Badr. 0325. Fr. of terra-cotta winged horse (L. side only); from handle, as Yo. 079-83, Pl. I, III. Same size, clay, and workmanship as 083, and perhaps belonging to it. 1½" × 1½".

Badr. 0326. Fr. of terra-cotta appliqué orn. Anthemion, with palmette-like leaves on L. side, and large expanding bud in centre on straight stem. R. side and top lost. Thin. 1¼" × 1¼" × (gr. thickness) 3/16". Pl. II.

Badr. 0327. Terra-cotta miniature animal (dog ?), standing with tail curved over back and head uplifted. Eroded, and L. hind leg and part of head lost. H. 1½". Pl. II.

Badr. 0328. Fr. of terra-cotta appliqué orn., showing Gandharvī holding out garland, as Badr. 0320. Broken off by line of garland and above Gandharvī's head; eroded. Width 1 13/16". Pl. II.

Badr. 0329. Fr. of terra-cotta appliqué mask; grotesque face, half human, half leonine, encircled by fringe of short hair. Cf. Yo. 055, Pl. I, but much finer modelling. Broken across by line of mouth and eroded. 1¼" × 2 5/16".

Badr. 0330. Terra-cotta appliqué mask. Neptune-like bearded head, as Yo. 057, but originally prob. better moulded. Badly eroded. H. 2".

Badr. 0331. Fr. of terra-cotta appliqué mask; grotesque human face of type Yo. 052. a-o. L. side only. H. 1 3/16".

Badr. 0332. Fr. of terra-cotta appliqué mask; lion-head as Yo. 058. a-i. Hair, ears, &c., broken off close round face; eroded. H. 1⅞".

Badr. 0333. Fr. of terra-cotta monkey mask. Front of head, eyes, nose, and part of R. cheek only. Very conventional type. Eyes, punched dot and circle; hair marked by series of incised dashes; and edge of hair round face by incised scalloped line. H. 1 5/16".

Badr. 0334. Fr. of terra-cotta monkey; female; upper part of body and beginning of arms only preserved. Breasts moulded and emphasized by punched dot and circle; fur marked by short incised dashes over back and shoulders; end of plait of hair over L. shoulder. Body moulded in two halves (back and front), afterwards joined, and arms added later. H. ⅞". Pl. II.

Badr. 0335-7. Frs. of three miniature terra-cotta monkeys, 'owl' type. *0335.* Body with frs. of legs, seated, wearing loin-cloth. H. 9/16". *0336.* Body and head, with portion of outstretched L. arm. H. 11/16". *0337.* Body and head with stumps of both arms stretched forward. H. ⅞".

Badr. 0338. Pottery vase, of ovoid shape, with flat base. Simple round orifice at top, without rim. Remains of upward-pointing spout immediately below mouth on one side; and on opposite side, somewhat lower down, appliqué boss prob. for handle. Boss prob. orig. moulded as face, but worn quite smooth. Whole surface eroded. H. 3¼", gr. diam. 2⅝", diam. of mouth 1", thickness *c.* ⅛". Pl. I.

Badr. 0339. Stucco relief fr. Bent R. leg, and upturned L. foot lying upon it, of Buddha seated in meditation. Marks of stick or straw core on under-side. White lime (?) stucco, worn and burnt; approaches in front the peculiarly hard consistency of Chal. 08, &c. 6¼" × 3¼" × 2".

Badr. 0340. Stucco relief fr. of Gandharvī, kneeling on one knee to R., with hands in adoration. Akin to *Ser.* iv. Pl. XV, Kha. ii. N.W. 003; but turned more towards spectator, and not a plaque. Traces of red paint on robe. Head, hands, and L. leg lost. White lime (?) stucco, hard. H. 3¼". Pl. XI.

Badr. 0341. Fr. of terra-cotta vessel, showing moulded

orn. in low relief of lion-like horned beast. Chinese style, within bead and fillet border. Cf. *Ser.* iv. Pl. I, Yo. 0055. a; Pl. IV, Yo. 0039. k. Gr. M. $2\frac{1}{4}$". Pl. III.

Badr. 0342. Terra-cotta relief fr. Head and upper half of fig. to waist of Buddha; prob. from plaque. Broken, or chipped away, close round fig.; surface scratched. H. $1\frac{3}{4}$".

Badr. 0343. Stucco relief fr. Upper half of L. ear, over life-size. Remains of dark and white paint. Sand-encrusted. H. $2\frac{3}{4}$".

Badr. 0344. Fr. of pottery vessel, hand-made, with base of handle. Latter begins as single stem, dividing into two stems which arch to either side as if to form double ring. Small ball as orn. in fork, and notched vertical ridge covering junction of two arches. Gritty coarse red clay; eroded. H. $2\frac{3}{4}$", width 2".

Badr. 0345. Stucco relief fr. Part of ornamental band, showing double row of beads interspersed with larger single elliptical jewels and rosettes (?). Grey, burnt hard. Much eroded. $2\frac{1}{4}$" × $\frac{3}{4}$".

Badr. 0346. Stucco relief fr. Waist to ankles of standing Buddha, with trace of L. hand or end of drapery by L. hip. White plaster, burnt hard, blackened, and cracked. Remains of paint. $4\frac{1}{4}$" × $2\frac{3}{4}$".

Badr. 0347. Stucco relief fr., of Gandharvī floating to R. and holding garland; as Bal. 075–6, Pl. IV, &c. White plaster. Surface completely eroded. $3\frac{1}{2}$" × $3\frac{1}{4}$".

Badr. 0348–9. Two stucco relief frs. Heads of floating Gandharvīs, as Bal. 075–6, Pl. IV. Traces of paint, black, red, and blue. Much worn, and features almost obliterated. White stucco. Gr. M. $2\frac{1}{4}$".

Badr. 0350–4. Stucco relief frs. Five Buddha heads from different moulds, all much worn. Traces of black paint on hair of 0350, 0351, and of light red and green paint respectively on their haloes, of which frs. are preserved. White plaster. H. of largest (0350) 2".

Badr. 0355. Stucco relief fr. Head of floating Gandharvī as Badr. 0348–9. Much worn. Gr. M. $2\frac{1}{4}$".

Badr. 0356. Stucco relief fr. Upper part, without head, of standing Buddha, with R. hand raised in Abhaya-mudrā, and L. arm by side (hand lost). White plaster, burnt, and eroded. Cf. *Ser.* iv. Pl. X, K. S. 001. H. $2\frac{3}{4}$".

Badr. 0357. Stucco relief fr. Lower part of standing Buddha, with L. hand by side holding fold of robe. Feet lost. White plaster, worn smooth but not eroded, with remains of red paint on robe. Same type and size of fig. as preceding. H. $2\frac{1}{4}$".

Badr. 0359. Fr. of stucco relief plaque, showing seated Buddha as Badr. 034–5, &c. Headless fig. only preserved. Red (burnt), covered with creamy paint. H. $1\frac{7}{8}$".

Badr. 0360. Terra-cotta monkey, seated with legs bent under him, L. leg lost, ithyphallic. Fair condition. H. $1\frac{1}{4}$". Pl. II.

Badr. 0361. Terra-cotta monkey, 'owl' type. Arms and legs lost, but evidently lying on front in attitude of floating on skin, as *Ser.* iv. Pl. III, Yo. 0031. d, e. Eroded. Length $\frac{3}{4}$".

Badr. 0362. Fr. of terra-cotta monkey, 'owl' type. Arms, and all below waist, lost. Head uplifted. Rudely made. H. $\frac{7}{8}$".

Badr. 0363. Terra-cotta monkey; 'owl' type, squatting on heels and playing banjo which he clasps to his breast; wears loin-cloth. R. leg lost. H. $\frac{3}{4}$".

Badr. 0364. Upper half of terra-cotta monkey; 'owl' type, playing on pipes (?) which he holds to mouth with both hands. H. $\frac{3}{4}$". Pl. II.

Badr. 0365. Terra-cotta monkey; female, seated (?), arms and legs lost. Fur marked only on head and back. H. $\frac{3}{4}$". Pl. II.

Badr. 0366. Fr. of terra-cotta monkey; head and limbs lost, except thigh of L. leg, stretched downwards. Eroded. H. 1".

Badr. 0367. Terra-cotta monkey; sitting upright on heels with L. hand on breast, wearing loin-cloth. R. arm and head lost. H. $\frac{3}{4}$".

Badr. 0368. Fr. of terra-cotta monkey or cat; 'owl' type. Head and upper part of long narrow body only preserved without trace of arms. Cf. *Ser.* iv. Pl. III, Yo. 0035. f, o, p; i. p. 111, Yo. 0036. Eroded. H. $1\frac{1}{4}$".

Badr. 0369. Pair of terra-cotta monkeys, embracing, as *Ser.* iv. Pl. III, Yo. 0048. e, &c. Part of head of female preserved with tail of hair. Head of male, and legs below mid-thigh, lost. H. $1\frac{1}{16}$". Pl. II.

Badr. 0370. Terra-cotta horse-head, as Yo. 090, but better modelled. Casting of L. side only. Hole drilled through between eye and mouth. Eroded. Length $1\frac{7}{8}$". Pl. II.

Badr. 0371. Fr. of wall of terra-cotta vessel, showing relief orn. of pointed leaf with small circular boss at tip. Midrib and veins running to edge of leaf marked by incised lines, and boss marked with double series of short incised dashes. Gr. M. $1\frac{1}{4}$".

Badr. 0372. Fr. of terra-cotta appliqué orn., prob. from neck of vase. Concave vertically. Represents oval bunch of grapes, as under feet of birds in *Anc. Khotan*, ii. Pl. XLIV, Mac. 001. Eroded. H. $\frac{13}{16}$".

Badr. 0373. Terra-cotta appliqué orn. from vase. Elliptical jewel within bead border, as on Yo. 022, Pl. III. One end lost. Length $\frac{7}{8}$".

Badr. 0374. Fr. of terra-cotta bird's tail, apparently cock's. Large arching plume with smaller one within curve. Feathers have series of close-set incised dashes along each edge, with plain ridge in centre. Well made; finished each side; broken off at lower end. $1\frac{3}{16}$" × $\frac{13}{16}$".

Badr. 0375. Terra-cotta grotesque sheep-head, as Yo. 087. a–d, Pl. III; prob. from handle. R. side only; most of surface of face broken away. Length $1\frac{1}{4}$".

Badr. 0376. Terra-cotta miniature vase; solid. Oval body, tapering from wide shoulders to small bottom, from which expands circular foot. Remains of pair of ring-handles on shoulders (which turn in almost flat above), and of circular neck broken off short. H. $\frac{9}{16}$", gr. diam. $\frac{1}{2}$" (without handles). Pl. II.

Badr. 0377. Terra-cotta monkey (?)-head, crude, globular, with short rounded muzzle and ring-punched eyes. H. $\frac{1}{2}$".

Badr. 0378. Terra-cotta relief monkey-head. More naturalistically modelled than the preceding examples, with long face and somewhat saturnine expression. Ears flattened down, and ring-punched fillet, or flat cap, on head. H. $1\frac{3}{8}$". Pl. II.

Badr. 0379. Stone spinning-whorl; greyish-green hard stone, marbled with black. Dome-shaped, concave on under-side. H. $\frac{5}{8}$", gr. diam. 1".

Badr. 0380. Clay spinning-whorl, echinus-shaped, concave on under-side. Orn. round gr. circumference with pair of incised lines between which are series of slanting incised dashes; and on under-side with seven-pointed star within incised circle, rays also crossed by short incised lines. Grey clay, hard-fired. H. $\frac{1}{2}$", gr. diam. $\frac{7}{8}$".

Badr. 0381-2. Frs. of two stucco relief plaques, showing Buddha seated in meditation as Badr. 034-5, &c. Hands folded over each other, and uncovered by drapery. Chevron border to halo within plain mouldings. Greater part of each preserved, except for outer lotus-petal border. Faces worn. Red clay, burnt. Diam. (*0381*) $3\frac{3}{4}$".

Badr. 0383. Terra-cotta monkey-head, solid, with frs. of wall of vessel to which it apparently formed knob-handle. Made in one with vessel, not appliqué. Face long and flat, with ring-punched eyes and dots for nostrils. Eroded. $1\frac{1}{4}$" × $1\frac{1}{8}$".

Badr. 0384. Terra-cotta fr. Back of head, moulded in separate half from front, and notched along joining surface. Hair marked by long incised grooves, parting from central line on top and reaching to neck. Circular hole through crown, just by edge of fr. $1\frac{3}{4}$" × $1\frac{3}{8}$" × $\frac{3}{4}$".

Badr. 0385. Terra-cotta monkey, standing upright with feet together, playing guitar, wearing loin-cloth. Feet lost, otherwise good condition. H. $1\frac{3}{16}$". Pl. II.

Badr. 0386. Torso of terra-cotta monkey, with fr. of outstretched L. arm. Fur not marked. H. $\frac{7}{8}$".

Badr. 0387. Terra-cotta monkey, seated with legs apart; perhaps playing musical instrument; wears loin-cloth; fur not marked. Head and most of arms lost. H. $\frac{7}{8}$". Pl. II.

Badr. 0388. Upper half of terra-cotta monkey; 'owl' type. R. side of head, and arms, gone. Fur not marked. H. $\frac{15}{16}$".

Badr. 0389. Upper half of terra-cotta monkey; 'owl' type. Head tilted back drinking from horn, which he holds to mouth with both hands. H. $\frac{5}{8}$".

Badr. 0390. Head and shoulders of terra-cotta monkey; 'owl' type. Very crude. H. $\frac{13}{16}$".

Badr. 0391. Clay spinning-whorl, conical, with flat under-surface. Top broken. Pinkish-grey clay. H. $\frac{7}{16}$", diam. $\frac{7}{8}$".

Badr. 0392. Stone spinning-whorl, dome-shaped with flat under-surface. Hard pale greenish-white stone, (jadeite ?). H. $\frac{1}{2}$", diam. $1\frac{1}{8}$".

Badr. 0393. Stone spinning-whorl; dome-shaped, with flat under-surface, and large hole expanding to bottom. Dark greenish-grey marbled stone, hard. H. $\frac{5}{8}$", diam. $\frac{15}{16}$".

Badr. 0394. Steatite charm, roughly vine-leaf-shaped, notched at edges, with large ring for suspension at stalk end, also notched. Slightly curved vertically. $1\frac{1}{8}$" × $\frac{7}{8}$" × $\frac{1}{4}$".

Badr. 0395. Paste bead; green-grey, Amalaka shape; chipped. $\frac{1}{4}$" × $\frac{3}{8}$".

Badr. 0396. Lead coin-like disc, pierced with long hole. On each side of this, on obv., are raised Chin. lapidary chars. *Rev.* blank. Diam. $\frac{7}{8}$".

Badr. 0397. Bronze bead formed of two cup-shaped seven-petalled open-work flowers, made of wire twisted cable-wise, and joined mouth to mouth. Diam. $\frac{3}{8}$".

Badr. 0398. Paste bead; cylindrical, grey, irregularly spotted with cobalt enamel over white. Cf. Badr. 0399, and *Ser.* iv. Pl. VI, Kelpin 009. a, &c. $\frac{5}{16}$" × $\frac{3}{8}$".

Badr. 0399. Fr. of glass bead; dark wine-colour, translucent; studded with cobalt blue spots on white paste surrounded by alternate opaque white and translucent grey-green rings. Rings formed of visible edges of alternate white and green saucer-shaped laminae; placed one in the other and then pressed into the body. The blue centre is applied last and is in relief. Cf. *Ser.* iv. Pl. VI, Kelpin 009. a. Diam. $\frac{7}{16}$".

Badr. 0400. Fr. of bronze ornament. D-shaped ring, inner surface smooth, outer scalloped. Open at one side where fr. of thin wire-like end of straight side of D remains. Diam. $\frac{7}{8}$", thickness $\frac{3}{16}$".

Badr. 0401. Fr. of bronze bar, with minute cup-shaped bowl at slight angle at one end. Bar tapers slightly towards bowl. Broken off at length of $1\frac{1}{16}$". Cf. Badr. 0119, 0417, Pl. X. Length $1\frac{1}{4}$", diam. of bowl $\frac{3}{16}$".

Badr. 0402. Glass seal; rectang., light ruby, translucent. Device in intaglio: an ear of corn with narrow pointed leaf curving across stalk. Edges chamfered, back rounded. Perfect condition. $\frac{1}{2}$" × $\frac{3}{8}$".

Badr. 0403. Mass of bronze frs.; coins, ornaments, spoon, wire nails, &c. All small and corroded.

Badr. 0410. Piece of string, knotted in form of rosary. Length 1' 11".

Badr. 0411. Bronze ink-seal; square with tunnel-shaped loop at back. Device: two broad heart-shaped palmettes in outline with their points at diagonally opposite corners of square, and voluted bases nearly touching at other diagonal. Inside each palmette, at point, is a dot, and

a similar dot at each of other corners of square. Rather roughly made. The shape is usually found only in stone; cf. *Anc. Khotan*, ii. Pl. L, A. 001. c; *Ser.* iv. Pl. XXIX, N. 0020. $\frac{5}{8}$" × $\frac{3}{16}$".

Badr. 0412. Bronze seal; octagonal with thin shank pierced with small hole. Much corroded and obscured. $\frac{11}{16}$" × $\frac{5}{8}$".

Badr. 0413. Bronze seal; square, drilled through from side to side parallel to sq. faces. Device on each sq. face, obscure. Cf. *Anc. Khotan*, ii. Pl. L, A. 006. a. $\frac{5}{16}$" sq. × $\frac{1}{4}$" thick.

Badr. 0414. Disc of white jade, prob. for seal ring. Plain. $\frac{1}{2}$" × $\frac{3}{16}$".

Badr. 0415. Fr. of bronze bracelet; narrow elliptical section. End slightly thickened with notched necking. Thickened at centre, where it is broken. Diam. 1$\frac{3}{8}$", thickness $\frac{3}{16}$" × $\frac{1}{8}$".

Badr. 0416. Three glass or shell beads; one blue, barrel-shape; one straw-colour, square; one small shell, drilled lengthwise. Gr. M. $\frac{3}{16}$".

Badr. 0417. Fr. of bronze bar, round in section, slightly tapering. Near thicker end, further thickened to form a rectang. block, $\frac{1}{4}$" long and $\frac{1}{8}$" wide. A pair of slightly raised mouldings encircle ends of block; space between pairs of mouldings on each face is cut into lozenges by notches in long edges of rectangle. In centre of each of two opposite is small depression. Perhaps fr. of beam of fine balance, the depressions being for points of fulcrum. Broken at both ends; corroded. Cf. Badr. 0119, 0401, Pl. X. 1$\frac{5}{16}$" × $\frac{1}{8}$".

Badr. 0418. Fr. of steatite; irregular; cut or rubbed into unequal facets. 1" × $\frac{5}{8}$" × $\frac{3}{8}$".

Badr. 0419. Fr. of steatite; irregular, white. $\frac{5}{8}$" × $\frac{7}{16}$" × $\frac{5}{16}$".

Badr. 0420. Miniature bronze wine-jug of quasi-classic form. Solid, intended as an ornament. Handle of scroll type, its upper end rising above lip of jug. Foot is tall and consists of astragal above flattened cone. Well modelled. $\frac{7}{8}$" × $\frac{7}{16}$".

Badr. 0421. Bezel of finger-ring; plain, intended to be engraved as seal. Length of arc $\frac{11}{16}$".

Badr. 0422. Fr. of malachite (?) bead, greenish-blue. $\frac{7}{16}$" × $\frac{3}{8}$" × $\frac{5}{32}$".

Badr. 0423. Fr. of bronze finger-ring. Bezel with raised ridge at one end, cleft in centre. No corresponding ridge at other end. About half of ring missing. Diam. $\frac{11}{16}$".

Badr. 0424. Elliptical lead disc resembling Chinese coin, but hole oblong and imperfectly pierced. Raised device on one side suggesting manner of lettering on Chinese coins, but chars. prob. not Chin.; cf. Badr. 0396. $\frac{13}{16}$" × $\frac{11}{16}$".

Badr. 0425. Bronze pendant, prob. earring (?), consisting of two parts cast in one piece. Upper part, a vertical elliptical ring with small projection at top, unjoined at one side (back). Lower part, a broad pear-shaped solid setting for jewel; raised border, transversely corrugated, on front side.

Upper end fashioned into a semicircular horizontal table. From this rises a conical knob projection into upper ring, which has the appearance of a swivel joint, but being cast in one piece is not movable. Lower end of 'pear' terminates in rosette-like knob. Plane of ring is at right angles to that of jewel setting. Encrusted with corrosion. Length $\frac{7}{8}$", width $\frac{3}{8}$".

Badr. 0426. Terra-cotta male head, broken from fig. Chinese type, hairless, wearing cap with high lobate crown like cap of Liberty, with vertical seam in front. The narrow bands rising from the sides meet in centre just below lobe of crown, where they are knotted together. Ears normal. Face smiling and very delicately modelled. For type of cap see silk painting Ch. lxi. 002, *Ser.* iv. Pl. LXXVI. 1$\frac{1}{8}$" × $\frac{5}{8}$" × $\frac{5}{8}$". Pl. II.

Badr. 0427. Terra-cotta two-humped camel, with rider or load. Head, hind feet, and most of load missing. 2$\frac{3}{16}$" × 2$\frac{1}{4}$".

Badr. 0428. Terra-cotta male head, of royal personage with fillet and turban. Long hair drawn back over ears and scrolled at ends. Indian type; well modelled. Small hole drilled through just beside scroll of hair. R. side worn away; under-surface smooth as though rubbed. Prob. orn. from pottery vessel. 1$\frac{1}{2}$" × 1$\frac{1}{4}$" × $\frac{3}{4}$". Pl. II.

OBJECTS SAID TO HAVE BEEN BROUGHT FROM CHALMA-KAZAN SITE

Chal. 01–4. Four frs. of stucco border, of imbricated lotus petals in relief bound at intervals by cinctures. Traces of blue colour wash on 01, and of pink on 04. For similar bands see *Ser.* iv. Pl. X, K. S. 0020; *Anc. Khotan*, ii. Pls. LIV, LV. White plaster. Gr. fr. 5$\frac{7}{16}$" × 2$\frac{3}{4}$" × 1".

Chal. 05. Stucco relief fr. Upper part of draped Buddha fig., head lost. R. hand raised in Abhaya-mudrā. Cf. *Anc. Khotan*, ii. Pl. LXXX, A. 01. White plaster, burnt hard, and showing fire fractures. 3$\frac{1}{2}$" × 2$\frac{1}{4}$". Pl. IX.

Chal. 06. a–d. Four stucco relief frs. Buddha heads; hair unmodelled. White plaster, much defaced by burning. Average size 1$\frac{5}{8}$" × 1".

Chal. 07. a–b. Two stucco relief frs. Nimbate heads, with prob. of Gandharvīs, with hair in loose top-knot, and large ear-rings. Cf. *Ser.* iv. Pl. XV, Kha. i. E. 0039. White plaster much defaced by burning. Aver. size 1$\frac{3}{4}$" × 1$\frac{7}{8}$".

Chal. 08. Stucco relief fr. Lotus-petal border of halo; two petals springing from row of seven seeds. As *Ser.* iv. Pl. XVI, Kha. ii. c. 004. White plaster, burnt. 3$\frac{1}{4}$" × 2$\frac{1}{2}$".

Chal. 09. Stucco relief fr. from lotus-petal border of halo. Three curved petals, springing from row of seeds. Plain fillet on other side of seeds. For type cf. *Ser.* iv. Pl. XV, Kha. vii. 001 and 004. White plaster, burnt. 3$\frac{3}{8}$" × 2$\frac{1}{2}$".

Chal. 010. Stucco relief fr. Buddha seated in Dhyāna-mudrā. Much defaced. Legs missing. Traces of red on robe, white on flesh and black on hair. Head broken off (now joined). Thick backing of several layers of very hard plaster. Material, white plaster. 6¼" × 4¾" × 2". Pl. IX.

Chal. 011. Stucco relief fr. Buddha head as Chal. 06, a–d. White plaster, very hard. Defaced by fire. 2" × 2¾".

Chal. 012. Stucco relief fr. Lower part of seated Buddha, similar to Kara-sai. 02. R. leg missing. White plaster, hardened by fire. 3" × 2".

Chal. 013. Stucco relief fr. Nude body of male fig.; head, R. arm, and all below hips missing. L. forearm flexed against upper arm. Body long and narrow, with umbilicus strongly marked. Edge of girdle below waist. For pose cf. *Ser.* iv. Pl. X, K. S. 005. Hard white plaster. 2¾" × 2¼". Pl. IX.

Chal. 014. Stucco relief fr. Three spiral curls of hair (Ammonite type) from colossal fig. in white plaster. For same type see *Ser.* iv. Pl. XVI, Kha. ii. N. 0014. Abraded but hard. 5" × 5¼".

Chal. 015. Stucco relief fr. from curved lotus-petal border, with beads at inner edge; cf. Chal. 09. Hard white plaster, much weathered. 5" × 4¼".

Chal. 016. Fr. of stucco slab, with incised chevron pattern and dog-tooth edge in relief. Hard grey plaster. 5¼" × 3¼".

Chal. 017. Bronze vase; small, cast; with trumpet mouth, sloping shoulders, and oval body tapering slightly to flat base. On each shoulder is grotesque T'ao-t'ieh ogre head in relief, as handle; very short and wide with curling ears or horns.

Each side, again, shows in very low relief, in oval panel within double-line border, a Chinese dragon plunging down from clouds (?) into waves. Panel has straight sides diverging upwards. At top and bottom of each side right-angled shoulders support rounded ends.

Fine design. Vase generally in fair condition but slightly corroded on surface. H. 3¼", diam. of mouth 1¼", at shoulders 1½", of base ⅞". Pl. X.

OBJECTS SAID TO HAVE BEEN BROUGHT FROM SITE NEAR KARA-SAI

Kara-sai. 01. Stucco relief fr. Buddha seated in Dhyāna-mudrā; single robe. Head, hands, feet, L. leg, and L. shoulder missing. Buff colour in places due prob. to fire. White plaster. Surface broken away. 3¼" × 3¼".

Kara-sai. 02. Fr. of stucco relief plaque; curved lower edge showing lower part of Buddha seated in meditation on lotus. Upper part to elbows, and L. side, broken away. Traces of pink and grey paint. White plaster. 3" × 2¼".

Kara-sai. 03. Stucco relief fr. Part of double flame border from vesica; spinous, as *Ser.* iv. Pl. XVI, Kha. ii. 0046. Inner ray pink, outer grey (orig. prob. blue). White plaster. 6¼" × 2¾".

Kara-sai. 04. Stucco relief fr. Part of flame border, as Kara-sai. 03. 3¼" × 2¼".

Kara-sai. 05–6. Stucco relief fr. Upper half of seated Buddha, much defaced. Traces of whitewash and red lines. Background plain. 5" × 5".

Kara-sai. 07. Terra-cotta appliqué mask; grotesque face as Yo. 052 and Ark. Han. 07. 1¼" × 1¼".

K.Sai. 08. Stucco relief fr. Gandharvī flying R. and holding garland in outstretched hands. Makes pair, in general type and details, with Bal. 075; see also *Ser.* iv. Pl. XV, Kha. ii. w. 001. Head, hands, and legs below knee lost. Remains of red paint on mantle under arm. Hard white plaster; surface worn. 3" × 3⅞".

K.Sai. 09. Stucco relief fr. Head of Buddha, from mould exactly similar to Bal. 077–80, Pl. V. Fr. of circular halo. White plaster, burnt hard as Chal. 08. Eroded. H. 1¼".

OBJECTS SAID TO HAVE BEEN BROUGHT FROM KIZIL-YAR

K. Yar. 01. Painted wooden panel. Oblong wooden board, chamfered at all edges on obv., and painted with hexagonal diaper much defaced; bordered on chamfers with repeating scroll pattern in light colour on dark ground.

Rev. On white ground an elaborate shrine in black outline, placed the upright way of panel. On a pavement stands a Stūpa-shaped shrine with two-storied podium and flight of steps leading to sanctuary. Seated in it a Buddha figure on straight Padmāsana under semicircular arch from which two leaves of a door are thrown open R. and L.

Dome, covered outside with curved imbrications, supports, on a kind of ornamental Tee, plus two slender detached flanking shafts, a tall spire built in horizontal courses and crowned by a half-open lotus. This is protected by diminishing 'Chattras', from the lowest of which hang long rippling streamers. Flame ornament flanks the Stūpa.

Perspective is used in the lower parts of drawing. The whole much sand-encrusted and faint. Small hole drilled through centre about ¼ from one end. Perhaps Pōthī cover. 20¼" × 6¼" × ¼".

K. Yar. 02–3. Two pieces of mica, prob. for inlay. Flat, roughly triangular in shape, with serrated edges. ¾" × ½".

K. Yar. 04. Chip of carnelian, reddish-yellow. Gr. M. ½".

K. Yar. 05. Fr. of dark brown translucent pebble (?). Gr. M. $\frac{7}{16}$".

K. Yar. 06. Bronze spoon-handle (?). Long, flat,

high relief, prob. for application to side of vessel. Mouth slightly open, mane erect. 2" × 1¾". Pl. IX.

Ark. Han. 030. Fr. of terra-cotta handle in form of animal. Traces of green glaze. Worn. 2" × 1⅛". Pl. IX.

Ark. Han. 031. Terra-cotta appliqué orn. Frog, life-size, much flattened. 2⅜" × 1⅝".

Ark. Han. 032. Fr. of terra-cotta vessel, in form of grotesque creature with large projecting ears, wide mouth, no upper lip, wedge-shaped nose, and bulging eyes. Rough work. 2⅛" × 1½". Pl. IX.

Ark. Han. 033. Fr. of terra-cotta grotesque horse-head; type of Yo. 091–2, Pl. III, and *Anc. Khotan*, ii. Pl. XLV, Yo. 009. b. L. side only. Nose broken; weathered. 1⅞" × 1$\frac{13}{16}$".

Ark. Han. 034. Terra-cotta horse, as Yo. 076–7, Pl. III; cf. also *Anc. Khotan*, ii. Pl. XLVI, Y. 009 c. R. half only. Head and extremities of legs missing. Remains of some object on saddle. 2⅜" × 1⅞".

Ark. Han. 035. Fr. of handle of terra-cotta vessel, with lozenge-shaped thumb-rest; moulded and glazed with light brown. Cf. *Anc. Khotan*, ii. Pl. XLII, T. M. 003. d. 2⅛" × 1⅞".

Ark. Han. 036. Fr. of terra-cotta handle, similar to Ark. Han. 035, but grey clay with dark green-brown glaze. Pattern a scroll rosette. 2⅝" × 1$\frac{11}{16}$".

Ark. Han. 037. Twenty-five stone and glass beads, carnelian, shell, paste, glass, agate, jade, &c.; and miniature bronze charm with impression of two concentric circles on one face. Gr. M. (bead) $\frac{5}{16}$".

Ark. Han. 038. Brown stone charm of irregular conical shape, pierced at point. Plain. 1" × ⅝".

Ark. Han. 039. Jade pebble, light greenish brown. Gr. M. $\frac{15}{16}$".

Ark. Han. 041. Fr. of mouth of terra-cotta vessel. Cable pattern round edge, and horizontally ribbed pendent orn. applied below. Well levigated. ⅞" × ⅞" × ⅛".

Ark. Han. 042. a–b. Jade and glass frs. (*a*) Jade pebble, irregular cone shape, drilled for thread. Length 1". (*b*) Thick tubular yellow glass bead. Diam. $\frac{5}{16}$".

Ark. Han. 043. Body of terra-cotta monkey. Head, arms, and legs missing. Grey. ⅝" × ⅜".

Ark. Han. 044. Bronze disc; thin, broken, with traces of gilding on both sides. Diam. ⅞".

Ark. Han. 045. Bronze stud, in shape of small vesica; concavo-convex. Edge divided by shallow lines into quatrefoil. *Rev.* remains of shank. ⅝" × $\frac{5}{16}$" × $\frac{3}{16}$".

Ark. Han. 046. Bronze stud; round 'cheese head' with central depression hollow. Two pins on edge at back, on one of which a diamond-shape washer. Diam. $\frac{7}{16}$". Depth ⅛". Pins $\frac{3}{16}$".

Ark. Han. 047. Curved bronze fr.; ribbed, broadened at one end. Prob. part of handle. 1⅛" × ⅜".

Ark. Han. 048. Bronze fr. with raised Arabic chars. in band between border lines. Arabesque background to inscr. Prob. part of vessel. 1$\frac{3}{16}$" × 1$\frac{3}{16}$" × $\frac{1}{16}$". Pl. X.

Ark. Han. 049. Bronze stud with sq., pyramidal head, shank at back, and remains of iron washer. Cf. *Ser.* iv. Pl. XXIX, L. A. 00177. a. 1½" × ½".

Ark. Han. 050. Fr. of bronze rod, split. Length 1⅛", diam. ⅛".

Ark. Han. 051. Fr. of handle of terra-cotta vessel, in form of grotesque sheep; cf. Yo. 086. a–f. One side of face broken away. 2⅛" × 1⅞".

Ark. Han. 052. Stucco relief torso: male, nude, with triple necklace, armlet (lotus pattern), and long curled hair on R. shoulder. Remains of arms, slightly outspread. Narrow waist. Well modelled; burnt. 4⅝" × 5⅛". Pl. IV.

Ark. Han. 053. Fr. of stucco relief fig., as preceding. Shoulders and head (defaced), with fillet falling from crown. Burnt. 3⅛" × 3⅞". Pl. IV.

Ark. Han. 054. Stucco relief fr. Hands, L. arm, and part of lap of Buddha seated in Dhyāna-mudrā. Well modelled. Traces of colour wash. Burnt. 2⅛" × 1⅞".

Ark. Han. 055. Stucco relief fr. Part of Buddha head with Uṣṇīṣa. Burnt. 1⅞" × 1½".

Ark. Han. 056. Fr. of stucco fig., hollow. Knees and lower part of tunic of kneeling woman, as Yo. 061, and *Ser.* iv. Pl. II, Yo. 2. Burnt. 2" × 1½". Pl. IX.

Ark. Han. 057. Stucco relief fr.; flame, like stalk of fleur-de-lis, from vesica; cf. *Ser.* iv. Pl. VIII, A. T. ii. 0041, also i. p. 142, A. T. 0020, for full descr. Burnt, point broken. 2⅛" × 1⅞".

Ark. Han. 058. Stucco relief fr. Head and nimbus of Buddha, badly defaced. Burnt. 2" × 1⅞".

Ark. Han. 059. Stucco relief fr. Buddha head and nimbus similar to Ark. Han. 058. Nimbus in form of lotus, with short petals projecting beyond seed-table, which forms background to head. Much defaced. Burnt. 2" × 1⅞".

Ark. Han. 060. Stucco relief fr. Upper part of R. side of grotesque face, life-size. Eyes well modelled. Eyebrows project in sharp, well-curved ridge. Herring-bone incisions above and below ridge to indicate hair. Hair on head indicated by rough long incisions converging to point over centre. Rough work. Burnt. 5⅜" × 4⅛". Pl. IV.

Ark. Han. 061. Stucco relief fr. Forearms and crossed legs of Buddha seated in meditation. Feet turned downwards. Traces of green (?) glaze. Rough work. Burnt. 3" × 1⅞".

Ark. Han. 062. Fr. of stucco relief plaque, showing L. knee and crossed down-hanging feet of seated Buddha, with lotus vesica, of which two petals appear below feet and knee. Cf. *Ser.* iv. Pl. VIII, A. T. iii. 0089. Foot well modelled. Burnt. 2½" × 2".

Ark. Han. 063. Fr. of stucco relief fig. or plaque. Crossed down-hanging feet of seated Buddha as in preceding fr. Edges of feet presented to front, and instep and toes well curved towards each other. Edge of robe nebuly. Burnt. $1\frac{7}{8}'' \times 1\frac{1}{8}''$.

Ark. Han. 064. Stucco relief fr. Octagonal faceted jewel, with lower end supported by seed-vessel of open lotus, and waving flame at other. Simplified form of *Ser.* iv. Pl. x, K. S. 0017. Burnt. $2\frac{1}{4}'' \times 1\frac{1}{4}''$.

Ark. Han. 065. Misc. stone and glass beads, and frs.; crystal, shell, agate, carnelian, turquoise, coral, garnet, &c. Gr. M. $\frac{5}{8}''$.

Ark. Han. 066. Fr. of carnelian seal, rectangular with corners cut off. Engraved with Arabic chars., poorly cut. Yellow carnelian. $\frac{3}{16}'' \times \frac{3}{16}''$.

Ark. Han. 067. Fr. of carnelian seal, yellow-red, elliptical, showing head and shield of Athene (?). Poor work. $\frac{5}{16}'' \times \frac{5}{8}''$.

OBJECTS SAID TO HAVE BEEN BROUGHT FROM TOGHRAK-MAZAR SITE, SAMPULA

Samp. 01. Fr. of wooden pedestal (?), similar to Ast. iii. 4. 063. Part of front border mitred at L. end for junction with return side; broken at R. end where a convex upward cut curve of lower edge suggests centre of side. Channel drilled at this part and exposed by break was probably for a pin.

Between two ends of fr. the lower edge cut into series of four roughly segmental arches. Three broken wooden dowel pins remain, two near mitred end, and one at centre for pegging to top board of pedestal. Painted black or dark brown on front and edges. Well preserved. $8\frac{1}{4}'' \times 1\frac{3}{16}'' \times \frac{5}{8}''$.

Samp. 02. Fr. of leather. Buff colour; one edge curled over. Perished and eaten into holes. $1\frac{7}{8}'' \times 1\frac{1}{8}''$.

Samp. 03. Fr. of wooden bowl, lathe-made, wide-mouthed, with thickened base. Black stains inside; material well preserved. Orig. diam. *c.* $4\frac{1}{4}''$ at mouth; at base 3". H. $2\frac{5}{8}''$. Pl. IX.

Samp. 04. Frs. of painted banner. Thin loosely woven buff silk, with outlines faintly visible traced in grey pigment. Part of head about half life-size, ¾ to R. p., wearing tiara (?). Top binding in purple twilled silk with remains of loop. Very ragged and perished. Width 20"; length of larger fr. 26"; of smaller 8".

Samp. 05. Fr. of wooden tab. Slightly tapering, broken at narrow end, the broad end being cut into abrupt angular point. On one side three very cursive chars. (Tibetan ?) in very black ink. Wood fine-grained and hard. Long edges roughly rounded. Well preserved. $3\frac{1}{4}'' \times 1'' \times \frac{1}{4}''$. Pl. XI.

Samp. 06. Two frs. of coarse woollen serge. Red. $6'' \times 2\frac{1}{4}''$; $6'' \times 1\frac{1}{4}''$.

Samp. 07. Two frs. of tapestry border, woven in wool; red, yellow, buff, and purple on a broken blue ground. Bold pattern, perpendic. to long edges, consists of a rather badly balanced modified anthemion, the terminal portion having the form of an inverted Pipal leaf of which the base finishes in two symmetrical scrolls.

In centre of leaf a spot of purple, brown, or yellow, contrasting with colour of leaf. The pattern rings the changes on the colours named. Blue ground cleverly shot with all other colours, giving a soft harmony to the whole.

Band of changing colour on each edge, into which the blue ground sends invading points to break the otherwise continuous slit between the two portions. Well worked. Colour in one well preserved, the other stained. Ragged. $7'' \times 3\frac{1}{4}''$; $9\frac{1}{4}'' \times 3\frac{1}{4}''$. Pl. LXXVII.

SECTION III.—FINDS AT SITES NEAR DOMOKO

On November 30th I set out from the eastern edge of the Khotan oasis for the long journey eastwards. A marching distance of close on 700 miles still separated me from the Lop Desert, my main goal for the winter's explorations, and it was essential for the work which I intended to carry out there that I should reach it while the winter cold lasted and allowed water to be transported for a sufficient period in the convenient form of ice. This consideration made it necessary to keep as far as possible to the direct caravan track, already familiar to me from my previous journeys, and thus to assure rapid progress. I could not however forgo opportunities for fresh archaeological observations at sites close to that route, and the information I had gathered at Khotan suggested such opportunities at two points. *Start from Khotan for journey eastwards.*

The first was in the vicinity of the small oasis of Domoko. It is ground possessed of special antiquarian interest on account of the striking changes that the cultivated area here has undergone right down to modern times, and of the numerous ruined sites to be found in those portions of it that have been abandoned to the desert. The series of these sites which I had occasion to explore in 1901 and again in 1906 and 1908, and which stretches from Ulūgh-ziārat in the west to Farhād- *Sites near Domoko previously explored.*

Bēg-yailaki and Khādalik in the east, have, together with the remains brought to light, been fully described in the reports on my former journeys.[1] I have also discussed there at some length the peculiar physical conditions that affect the irrigation resources of Domoko and the neighbouring small oases. These largely account for the changes just referred to in the extent and position of their cultivated areas.

Extended cultivation at *Khalpat*.

I may therefore conveniently note here a few observations that I made about the latest of such changes on my way to the newly reported remains of Kuduk-kōl east of Domoko. When approaching Chīra from the scrubby desert on the west I found the small cultivated area of Khalpat, which by 1908 had grown up around what in 1901 was a solitary 'Langar' by the roadside, linked up by a continuous stretch of fields with the main oasis.[2] This rapid extension is all the more noteworthy because the cultivation at Chīra, as explained to me by Ibrāhīm Bēg, my old retainer, for years Mīrāb Bēg of Chīra and thus a very competent informant, is entirely dependent on *ak-su* or the water brought down from the mountains by the spring and summer floods.

Increased cultivation of *Gulakhma*.

An equally striking change was observable eastwards. There the cultivated area of Gulakhma, the next oasis in the line stretching along the foot of the gravel glacis of the K'un-lun, was found to have extended since 1906 right up to that of Ponak.[3] Old fields long abandoned to the desert had again been brought under cultivation, but low tamarisk-cones still remained to bear witness to the change. The village lands of Ponak, which in 1901 I had seen almost completely abandoned to the desert,[4] were now said to support some two hundred households, though they were still far from being completely cleared of the scrub and drift-sand of the desert that had overrun them for centuries.

Irrigation supply from *kara-su*.

Irrigation in the area of Gulakhma, Ponak, and Domoko is supplied mainly by the springs in which the underground drainage from the mountains (*kara-su*) comes to the surface again at the foot of the gravel glacis south of the oases.[5] It is therefore of interest to note that when passing on December 2 from Gulakhma through Ponak to Ak-kōl, at the north-eastern edge of the Domoko oasis, I found the Ponak-akin carrying about 28 cubic feet of water per second and the Domoko-yār stream, which farther down supplies water to the new and still expanding colony of Malak-ālagan,[6] not less than about 100 cubic feet per second.

Finds at *Kuduk-kōl*.

My explorations of 1906 at and near the site of Khādalik and those of 1908 at Farhād-Bēg-yailaki had proved that remains of settlements dating from the Buddhist period were plentiful in the desert belt immediately to the north and north-east of the present oasis of Domoko. They had at the same time shown me that the peculiarly deceptive character of this desert ground, covered for the most part with close-set tamarisk-cones and scrubby jungle, made it extremely difficult to trace them all.[7] I was accordingly by no means surprised when I learned at Khotan of a find of manuscript leaves, evidently in Brāhmī, reported to have been made recently at some place close to Khādalik.[7a] Through Mullah Khwāja, my old guide of 1906 to the last-named site, I secured at

[1] See *Ancient Khotan*, i. pp. 452–64, on Hsüan-tsang's P'i-mo and the sites of 'Old Domoko', Uzun-tati, Ulūgh-ziārat; *Serindia*, i. pp. 154–210, on the remains of Khādalik, Balawaste, Darabzan-dong, Mazār-toghrak; *ibid.* iii. 1244–65, on the site of Farhād-Bēg-yailaki, Kara-yantak, &c.

[2] Cf. *Serindia*, iii. p. 1264; compare Map No. 14. B. 2 with *Serindia* map Sheet No. 27. D. 4.

[3] Compare Map No. 14. C. 2. with *Serindia* map Sheet No. 31. A. 4.

By an error in compilation the limit of cultivation (green) has in the 1 : 500,000 map sheet been shown too far south. It should run from Hungatlik village straight east to the Ponak-akin bed and thence to about a mile north of Ak-kōl village.

[4] See the *Map showing portions of the territory of Khotan* attached to *Ancient Khotan*, i, for the ground abandoned to desert vegetation south of Lachin-atā-mazār.

[5] Cf. *Ancient Khotan*, i. pp. 96, 459, 467 sq.; *Serindia*, iii. p. 1263.

[6] See regarding the recent colony of Malak-ālagan and the formation of the Domoko-yār to which it owed its origin, *Ancient Khotan*, i. p. 454; *Serindia*, i. pp. 203 sq.; iii. p. 1246; *Desert Cathay*, i. p. 238.

[7] Cf. *Serindia*, iii. p. 1245; also *Ancient Khotan*, i. p. 453.

[7a] Frs. of Pōthī leaves, mainly in Sanskrit, were handed to me by Mullah Khwāja as brought from Kuduk-kōl. They are marked Kuduk-kōl. 031–48 in the inventory of Mr. Pargiter, App. *E*.

Gulakhma the two men, Turdi and Kurbān of Domoko, from whom he had obtained his share of the find, subsequently passed on to Badruddīn Khān, and they readily guided me to the spot. It proved to be a patch of wind-eroded ground about 150 yards across, covered with pottery debris. It was situated amidst closely set tamarisk-cones and about a quarter of a mile to the north of the track that leads from the northern edge of the Domoko oasis to the village of Achma eastwards. Reference to our survey of 1906 indicated that this small Tati, called *Kuduk-köl* by my guides, lay a little over a mile to the east of Darabzan-dong and about the same distance to the south of Kök-jigda, both small ruined sites that I had visited in 1906 from Khādalik.[8]

A low shapeless mound on the eastern edge of this area and close to the foot of a tamarisk-cone rising steeply to about 30 feet in height (Fig. 96) marked the ruin from which Turdi and Kurbān, while collecting fuel last winter, had extracted a packet of manuscript leaves, evidently those of a Pōthī. The complete destruction of the shrine, for such it soon proved to have been, was attributed to the burrowing which Mullah Khwāja had carried on some months later in the hope of securing more *khats* for his Amban at Keriya. On clearing the small mound composed of sand and debris we reached the plastered floor at a depth of about four feet. What had survived of the square walls, built as at Khādalik of timber and plaster, had been levelled to the ground by Mullah Khwāja's operations, except on the east where the sand sliding down from the tamarisk-cone had afforded some protection. Enough remained there of the foot of the wall to show that the cella of the shrine, or possibly its enclosing passage, had measured 21 feet square.

MS. leaves from *Kuduk-köl*.

The numerous fragments of plaster painted in tempera which were found amidst the debris left no doubt that the walls had been decorated with compositions in the style of the mural paintings of which I had recovered remains in 1906 from the ruin of the main temple of Khādalik.[9] The fragments brought away (Kuduk-köl. 011–17, 020–8), though most of them have suffered badly by exposure, show workmanship in design and colour-treatment quite equal, if not superior, to that of the Khādalik frescoes. Among them I may single out for mention the representation of a miniature Stūpa (025) with pennons, and the head of a Trimūrti figure (014) closely recalling that on the Dandān-oilik panel D. vii. 6.[10] That diapers of small Buddha figures seated in rows prevailed in the decorative scheme, just as at Khādalik and Dandān-oilik, is proved by the fragments 024, 026. Among other relics recovered are the fragments of a finely carved wooden halo showing portions of small Buddha figures (01, Pl. IX); two elaborately turned wooden finials (03, 04); some stucco relief fragments (05–7, Pl. IX), and the painted panel, 08, badly effaced but still showing the figures of three horsemen riding to the right proper. The pose and dress of the middle one suggest that the same personage is depicted who appears in the Dandān-oilik panel D. vii. 5.[11] Several small Brāhmī manuscript fragments (Kuduk-köl. 029–30) recovered in clearing the site served to confirm the statement that the Pōthī leaves had come into Mullah Khwāja's possession from here.

Remains of ruined shrine.

Scanty as the remains are that have here survived prolonged exposure to erosion and the still more destructive burrowing by men, they amply suffice to prove that the shrine belongs, like the ruins traced at Darabzan-dong and Kök-jigda, to the same period as the temples of the Khādalik site situated only some three miles farther north, and is likely to have been abandoned like them about the end of the eighth century A. D.[12] At the same time the way in which this small ruin had for so long escaped discovery, notwithstanding the search made in this neighbourhood during my former stay at Khādalik, made it appear very likely that more remains of the same character might still remain hidden in the maze of tamarisk-cones that cover the ground to the east of the Domoko-yār.

Likelihood of remains left under tamarisk-cones.

[8] See *Serindia*, i. pp. 199 sq.; for the relative position of the three sites, see Map No. 14 c. 2.

[9] See *ibid.*, i. p. 166; iv. Pl. XI, XII.

[10] See *Ancient Khotan*, ii. Pl. LX, for D. vii. 6.

[11] See *ibid.*, i. p. 278; ii. Pl. LIX.

[12] Cf. *Serindia*, i. p. 159.

I remembered how on my previous visit I had observed small fragments of stucco relievos emerging from the slope of eroded soil below the foot of a big tamarisk-covered sand-cone near Balawaste, the northernmost of the smaller sites about Khādalik. These evidently marked the position of a ruined Buddhist shrine, which had first been exposed to erosion before being covered up by the accumulation of drift-sand.[13] But a systematic search for such ruins in this large and deceptive area would have taken time, which my programme would not allow me to spare.

Remains from Balawaste.

Curiously enough it was near Balawaste that the discovery was said to have been made of a considerable collection of fresco and stucco relievo fragments and of other miscellaneous relics from a Buddhist shrine, which Badruddīn Khān delivered to me at Kāshgar in June 1915.[13a] I have no means of verifying the statement; but, in view of the very close agreement of the relics in character and style with those found at Khādalik, I believe it to be probably correct. Among the fragments of mural paintings in tempera, some of large size and evidently cut off extant walls, others, no doubt, picked up loose in the debris, the following may be specially noted for their subjects. In Bal. 02 we have interesting architectural details of distinct Gandhāra type; in 05 a–h a collection of standing Buddha figures radiating as in representations of the Śrāvastī miracle; in 094 a well-drawn yellow horse galloping; in 098 a princely figure playing a harp with graceful hand; in 0104 two ducks facing, &c. Donor figures of interest, on account of the faithful representation of their costume, are seen in 0117–18, 0121–7. Fragments of fine stucco painted both on front and back, 0122–3, 0128–9, may, perhaps, have belonged to partitions dividing small niches in a shrine. Among the many stucco relievo fragments the figures of floating Gandharvīs (050, 075–6, 082, Pl. IV) may be noticed; small Buddha heads are still more frequent (see Bal. 077, 090, Pl. V). In the fragment 092 we have distinct evidence that accidental burning has helped to harden these small stuccoes.

Finds from Domoko, Khādalik.

The area of ruined sites north-east of Domoko of which Khādalik marks the centre and Balawaste and Kuduk-köl the north and south ends, is likely to have been the source also of the series of miscellaneous relics marked *D.K.* in the List below. The small objects in metal, stone, and bone, D.K. 01–8 (Pl. X, XI), were brought to me at Achma, where I stayed for the night after clearing the remains at Kuduk-köl. The rest, D.K. 09–104, were acquired by Badruddīn either at Domoko itself or received from there through Mullah Khwāja and other inhabitants. The fragments of stucco reliefs, of which some are shown in Pl. IV, and the painted panels, unfortunately much effaced (D.K. 057, 0101–2, Pl. XIII), suggest provenance from temple remains of approximately the same date as those of Khādalik. The scraps of Tibetan, Chinese, and Brāhmī writing found on wood, D.K. 017, 054, 055, agree with corresponding finds made at Khādalik.[14] The small objects acquired through Badruddīn Khān, and mainly stucco relief fragments, Kha. 01–4 (Pl. II, V), were said to have been brought from Khādalik itself. Remains of MSS. and some wooden records, mainly in Sanskrit and Khotanese, as well as in Tibetan, acquired through Badruddīn Khān, were also ascribed to Khādalik and neighbouring sites.[14a]

Alleged finds from Ulūgh-ziārat.

Small antiques in metal, stone, and wood acquired by me at Domoko and marked in the List with *U.Z.* were said to have been found in the great debris area that extends north and south of the sacred burial-place of Ulūgh-mazār or Ulūgh-ziārat in the desert to the north-west of Domoko.[15] I have, I believe, proved that it marks the position of Hsüan-tsang's *P'i-mo* and Marco Polo's Pein.[16] Judging from what my visits to this ground in 1901 and 1906 had shown me, I think that

[13] See *Serindia*, i. p. 198.

[13a] Frs. of MS. foll. and documents thus received, mainly in Sanskrit but also in Khotanese, are described by Mr. Pargiter and Prof. Konow in App. *E*, *F* (Balaw. 0149–55, 0173–272).

[14] Cf. *Serindia*, i. pp. 155, 162, 164.

[14a] See App. *E*, *F* for Khādalik. 04–29, 038–51; Domoko. 0110–25, 0167–8; Farhād-Bēg. 01–7; Ile-dong. 01–26.

[15] See Map No. 14. B. 2.

[16] Cf. *Ancient Khotan*, i. pp. 457 sqq., 462 sqq.; *Serindia*, iii. pp. 1263 sq.

the attribution of these antiques may well be correct. It is otherwise with the large fragment of a carved and painted wooden nimbus U.M. 01 (Pl. XIII, XIV), which was brought by Badruddin Khān and said to have been obtained from Ulūgh-mazār, and which has been shown accordingly in the List below. The conditions observed by me on the 'Tatis' around Ulūgh-ziārat, together with the fact that this area was occupied down to the early Muhammadan period, make it appear unlikely that a relic of Buddhist worship such as this could well have survived there. The carving is painted on the reverse also, which shows that it belonged to a statue detached from the temple wall. The painting on the back represents a seated Buddha and is of interest, as in spite of the faded surface it still shows 'high lights' boldly applied.

Changes in position of springs. On both my previous journeys the visits paid to the string of small oases between Chira and Keriya had afforded opportunities of observing some recent striking changes in the position or level of the springs that furnish the principal supply of water (*kara-su*) for their irrigation. When recording these variations at Kara-kīr and the Domoko-yār in *Ancient Khotan* and *Serindia*, I pointed out that the displacement of the cultivated area consequent on such changes may furnish a plausible explanation of the peculiar frequency with which old sites in the neighbourhood of these oases have been abandoned at different periods.[17] The observations in question thus claim a direct archaeological interest, and on this account I may briefly record here another instance, which my rapid passage on December 3rd to Keriya town allowed me to notice, of subsoil water coming to the surface in fresh springs and giving rise to a displacement of cultivation.

New cultivation at Kara-khān. At Achma, the colony 'newly opened', as its name indicates, some twenty years before on the appearance of the Kara-kīr springs, the area under cultivation had remained stationary since my first visit in 1901;[18] for the number of households, about eight hundred, said to be in occupation of it, had not changed. Nor was any change apparent in the extent of the older and much smaller cultivated area of Laisu which adjoins it on the east. But farther on, when passing through the width of the great Keriya oasis, my attention was attracted by the wide and deep bed, known as Sai-bāgh-yār, which the road crossed to the east of Sisaghlik.[19] It was said to have been eroded three years before by a big summer flood of *ak-su*. The considerable stream formed by the springs whose waters collected in the bed was now being utilized for opening a new colony at Kara-khān, situated some seven miles beyond the northern edge of Keriya cultivation as observed in 1901, and then wholly desert. The advent of this new water-supply was hailed with all the more satisfaction by the people of Keriya that their oasis is otherwise almost wholly wanting in *kara-su* or spring-fed irrigation.

OBJECTS EXCAVATED AT KUDUK-KÖL

Kuduk-köl. 01. Fr. of carved circular wooden halo. Outer border of flame pattern. Within, narrow bands of alternate seed and zigzag pattern, the bands slightly twisted, cablewise. Within these borders, the upper parts of three Buddha figs. and halo of fourth. The centre one of the three has L. hand raised in Abhaya-mudrā. All face to front, having Uṣṇīṣa, long ears, and nimbus. Hair treated as mass without markings. Carving extremely fine and good. Prob. originally painted. Back plain and convex, with traces of paint. Broken edge seems recent. 5¾″ × 1⅞″ × ⅝″. Pl. IX.

Kuduk-köl. 03. Turned wooden finial, as M. Tāgh. c. 06, but slightly elaborated. Tenon central. Very cracked but hard. Remains of pink paint over whole. 8¼″ × 3¼″. Tenon 2⅜″ × 1⅛″ × ⅞″.

Kuduk-köl. 04. Turned wooden finial, vertical section of, exactly similar to Kuduk-köl. 03. Tenon 3″ long.

Kudok-köl. 05. Stucco relief fr., from border of vesica. Band of imbricated lotus petals with flames on outer edge, as *Ser.* iv. Pl. XV, Kha. vii. 001, 004, and *Anc. Khotan*, ii. Pl. LV, D. II. 55. Colours visible.

[17] Regarding the springs which appeared south of Kara-kīr and led to the opening of new cultivation at Achma, cf. *Ancient Khotan*, i. pp. 459, 467 sq. For the formation of the Domoko-yār and the resulting colony of Malak-ālagan, see *Serindia*, i. pp. 202 sqq.

[18] Cf. *Serindia*, i. p. 211.

[19] See Map No. 14. D. 3, near the village tract of Pondam.

pink and grey. Prob. damaged by fire. 2⅜″ × 2⅜″ × ⅜″. Pl. IX.

Kuduk-köl. 06. Stucco relief fr.: part of halo border similar to Kuduk-köl. 05, Pl. IX, but without flames. Colour faintly visible. Hard grey plaster, prob. burnt. 2¼″ × 2⅜″ × ⅜″.

Kuduk-köl. 07. Fr. of stucco, surfaced with red clay and painted pink. Prob. part of fig. 3½″ × 2″ × 1⅜″.

Kuduk-köl. 08. Fr. of painted wooden panel; almost effaced. Upper part and one end broken away. *Obv.* Subject: three horsemen riding to R. p. Middle horse, dappled; black mane, hogged. Rider in pink robe and black top-boots. Holds out *katōra* in R. hand. Long ends of stole float backwards. Cf. *Anc. Khotan*, ii. Pl. LIX, D. vii. 5, where prob. same personage is depicted.

Rear horse unmarked; black mane; head and hind legs cramped to bring within available space. Rider has black top-boots, and black sword scabbard at side. Front rider seems to be similarly equipped, and has streaming stole. All much defaced and very indistinct. Work free and good. *Rev.* Traces of horseman of same type. 11″ × 3⅜″ × $\frac{3}{16}$″.

Kuduk-köl. 09. Fr. of painted wooden panel, pointed at one end and drilled for hanging. All other sides broken away. Traces of pink and grey wash on one side. Very soft. 7″ × 3″ × ⅜″.

Kuduk-köl. 010. Fr. of painted wooden panel. End and one side broken. Hole near intact corner. *Obv.* A few lines visible but design not made out. *Rev.* Coated with whitish pigment, straw, and sand. 10½″ × 2⅜″ × $\frac{5}{16}$″.

Kuduk-köl. 011. Fresco fr., with traces of paint. Seated fig. ¾ to R. p. in crimson robe and wearing Mukuṭa. Flesh pale. Much defaced. 6″ × 7½″ × 3″.

Kuduk-köl. 012. Fresco fr., showing part of meander 'rainbow' halo in red, pale pink, green, and buff. Red band on outer edge. On inner edge, adjoining halo rays is strip of pale pink with transverse binding of pale buff scored with red lines over greater part of its length. Then broad band of dark red on which is a row of feather-like leaves projecting outwards. Then border of seeds in red outline on pink; band of plain pink; and another border of seeds. Abraded. 12″ × 8″.

Kuduk-köl. 013. Fresco fr., from vertical border containing medallions with worshipping figs. On R. side of main border are two narrower bands, light buff and black. On borders itself remain parts of two medallions. Lower contains upper part of crowned fig. Body turned ¾ to R. p., head turned back ¾ to L. p. and slightly upward; arms extended down as though holding some object (broken away). Across upper part of fig. floats portion of red drapery (?), prob. part of costume of main fig.

To L. p. is prob. a demon, with yellow face and staring eyes, faint traces of the head being visible. Above is lower part of second medallion, with squatting, nearly nude, pink figure of plump proportions; L. arm flexed across body. Background of both medallions emerald green, border plain white; all outlines red. Much abraded. 9½″ × 9″.

Kuduk-köl. 014. Fresco fr. Trimūrti fig. similar to *Anc. Khotan*, ii. Pl. LX, D. vii. 6; head and upper R. arm only. Main fig. blue, with black hair and moustache and yellow Mukuṭa. R. face pink, L. yellow. Upraised hand holding fruit, as in example referred to. Halo red with green border. Much abraded. 10½″ × 6″.

Kuduk-köl. 015. Fresco fr.; Buddha head and shoulders, ¾ to L. p. Dark green robe. Green nimbus; red vesica with brown border. Red ground outside vesica. Portion of grey Padmāsana above. Very abraded. 7½″ × 4½″.

Kuduk-köl. 016. Fresco fr., showing green half-open lotus on pink stem. Red ground. 5″ × 4½″.

Kuduk-köl. 017. Fresco fr., showing head of Chinese fig. with flat black hat. Flesh pink. Much defaced and very friable. 2¾″ × 2⅜″.

Kuduk-köl. 018. Stucco relief fr.; hair painted blue. Red clay with fine fibre. Soft. 1½″ × 1½″.

Kuduk-köl. 019. Stucco fr. L. eye of Buddha, half closed, modelled in low relief and painted pale pink with black and red lines. White of eye shaded with blue at corner. Red clay mixed with fine fibre; soft. 2″ × 1½″.

Kuduk-köl. 020. Fresco fr. with traces of Chinese fig. on black ground. To L. p. a red lotus bud (?). Very badly defaced. 5½″ × 5″.

Kuduk-köl. 021. Fresco fr., same style as 020. Pink lotus with yellow seed-table, and large pink bud (?), on black ground. Bad condition. 7″ × 4½″.

Kuduk-köl. 022. Fresco fr. with head and R. shoulder of Buddha, ¾ to R. p., on green vesica with grey nimbus. Outer ground red; dark grey band diagonally across one edge. Flesh pale pink; robe dark brown or grey. Face well drawn. Abraded. 6½″ × 5½″.

Kuduk-köl. 023. Fresco fr. with dark brown drapery from bust of Buddha. Open above showing neck (lighter brown) with rayed device at **V** of opening. Contour lines black. Abraded. 4½″ × 3½″.

Kuduk-köl. 024. Fresco fr., from diaper of seated Buddhas. Parts of three rows. Buddhas in Dhyāna-mudrā, with heads ¾ to L. Colouring black, dark red, and grey, counter-changed. Surface scratched. 7½″ × 12½″.

Kuduk-köl. 025. Fresco fr., almost effaced, showing R. hand holding up begging-staff (?) against oval dark background. To R. of hand, miniature Stūpa with pennons. Beyond dark oval, on L., fr. of halo (?) with green and white waving rays, and red border. In R. top corner, leaves on light buff background. 1′ 5″ × 1′.

Kuduk-köl. 026. Fresco fr., showing parts of two seated Buddhas, prob. from diaper. Colouring dark grey, red,

maroon, and black. Rough work; surface much gone. 4″×6″.

Kuduk-köl. 027. Fresco fr., showing R. foot of large divinity standing on lotus upon lake, perhaps Lake of Rebirth. Lotus plants and small white flowers grow from bank. Background dark red; water green; foot white with dark red outlines; lotus light buff outlined dark red and black. 1′×10½″.

Kuduk-köl. 028. Fresco fr., showing part of Buddha, within black vesica, on red background; much effaced. 4½″×3¾″.

OBJECTS BROUGHT FROM RUINED SITES NEAR DOMOKO

D.K. 01. Stone bead, echinus shape, facetted, and pierced with large hole. Black stone (?) jet. Well preserved. Diam. ¾″, depth ½″. Pl. X.

D.K. 02. Lump of resin, kidney shaped, drilled as for bead; rich ruby colour. ⅞″×⅝″×½″.

D.K. 03. Lead rod, doubled into loop. Partly corroded. 1⅜″×½″.

D.K. 04. Ball of lead of irregular surface. Diam. ⅝″.

D.K. 05. Bronze buckle; small, circular. Section through ring, lozenge-shaped. Thin for about one quarter of circumference, where tongue is attached. Tongue made from piece of sheet, the lower end narrow and bent to form ring which encircles thin part of ring of buckle, and the point curved to lie close to opposite side of ring of buckle. Diam. ⅞″. Pl. XI.

D.K. 06. Ball of stone or paste; hard light grey; perhaps an inferior jade. Diam. ¾″.

D.K. 07. Circular ring or disc of bone or ivory, stained pink, and drilled with hole through centre. In section, of flat echinus shape, with slightly chamfered fillet on top, and receding fillet at bottom. Four circles engraved on sides at cardinal points, with centre dot to each. Well preserved. Diam. ¾″, thickness $\frac{3}{16}$″. Pl. X.

D.K. 08. Bone ring of same material as D.K. 07, but paler pink. Six incised double rings with centre dot, placed alternately near opposite edges of side surface of ring. Surface slightly corroded. Diam. $\frac{7}{16}$″, depth $\frac{3}{16}$″. Pl. X.

D.K. 09. Stucco relief fr.; elongated ear, pierced with large hole. Material; red unburnt clay mixed with fine fibre; backing of grey clay with coarse fibre. Painted pale pink with red contour lines. Damaged and friable. Prob. part of D.K. 014, Pl. IV. 4⅛″×1⅞″.

D.K. 010. Stucco relief fr. Circular lotus rosette surrounded by seeds; prob. central orn. of tiara of D.K. 014, Pl. IV. Traces of white paint. Peg of wood stuck into lower side to attach to fig. Same material as D.K. 09. Damaged and friable. 2¾″×3¼″. Pl. IX.

D.K. 011. Stucco relief fr. Headless Buddha seated in Dhyāna-mudrā. Umbilicus very strongly marked. Fairly good modelling. Imperfectly burnt. Surface cracked and abraded; sand-encrusted. 9″×7¼″. Pl. IV.

D.K. 012. Stucco relief fr.; Uṣṇiṣa from large Buddha head. Hair wavy with circular whirling arrangement at front (?), pierced in centre. Material, grey clay mixed with vegetable fibre, with outer coating of red clay. Remains of dark paint. Well preserved. 4″×2¾″.

D.K. 013. Stucco relief fr., in two pieces. Seated Buddha, Dhyāna-mudrā, with pear-shaped nimbus. Behind and above numbus, part of L. side of another fig. Buddha robe coloured bright pink; hair dark grey; flesh light pink. Material red clay with fine woolly fibre. Back bears impression of drapery lines, to which it was attached. Very soft; much damaged. 4¾″×2¼″. Pl. IX.

D.K. 014. Stucco relief fr. Bodhisattva head, life-size, effeminate. Well-arched eyebrows meeting at bridge of nose. Very small, but full, lips. Elongated half-closed eyes. Face broad and rather flat. Hair parted in waves on forehead below tiara. Lower band of tiara present, consisting of square jewels connected by five strings of pearls. Flesh coloured pale pink over white. Urṇā marked by red circle, hair blue, lips black. D.K. 09–10, Pl. IX, prob. belong to this fr. Material, grey clay faced with red and mixed with fine fibre; core of rushes; well preserved. 9″×6¾″. Pl. IV.

D.K. 015. Fr. of stucco slab, originally attached to curved lotus-petal border, like Chal. 015, of which impression remains on black. On obv., single Chin. char. Traces of white or pale pink wash. Red clay. Well preserved. 7¼″×3¾″.

D.K. 016. Fr. of painted wood; cut on three sides, with painting of face ¾ to R. p. on red ground. 1¾″×1½″×¼″.

D.K. 017. Fr. of wooden tablet, burnt at one end, with faint traces of Brāhmī inscr. 3 ll. and 2 ll. on respective sides. 2¾″×1¼″×¼″.

D.K. 039. Length of string, tied into knots to form rosary-like cord. Length *c.* 2′.

D.K. 040. Stucco relief fr. from foliate flame border, with traces of gilding. Hard white plaster. 2¼″×1½″.

D.K. 041. Stucco relief fr. Long-necked bird (?), issuing from open jaws of dragon. White plaster, burnt. Low relief. Much abraded. 2″×1¼″. Pl. X.

D.K. 042. Fr. of cotton (?) fabric; red, twill. 11″×4″.

D.K. 043. Plaited string band, natural colour with lozenge pattern in red; oversewn in places at edges and rounded at ends. 1′ 1″×3¾″.

D.K. 047-8. Two bronze frs., irregular shape. Gr. fr. 1$\frac{1}{16}$″×¾″×¼″.

D.K. 049. Fr. of bronze seal-ring; bezel and thickened

shoulders, with dragon device, very faint. Elliptical seal surface ½" × 11/16". Pl. X.

D.K. 050 a–b. Glass and bronze frs. on string. (*a*) Blue cut glass pendant of elongated pear shape; fine colour. 1¾" × ½". (*b*) Sq. bronze seal, with tubular shank for string and Chin. chars. on face. Corroded. ⅝" sq. Pl. X.

D.K. 051. Fr. of horn comb, with long and slightly arched back, and single row of relatively short teeth. End sloping outward and from arch of back. 2¾" × 3" × ⅛".

D.K. 052 a–c. Bronze frs. on string. *a, b.* Two Chin. coins, corroded. *c.* Bronze ferrule, broad at open end, which is trumpet-shaped; then narrowing, and finally spreading slightly again to opposite end, which is closed by plate perforated with two holes. Diam. 1¼", h. ⅞".

D.K. 053. Portion of bone finger-ring, with roughly cut sq. bezel surrounded by rays. Width ⅜". Pl. X.

D.K. 054. Fr. of inscribed wood; lacquered black on one side and having three Chin. (?) chars. on rev. 4½" × ⅝" × ⅜".

D.K. 055. a. Scrap of paper painting, showing only end of camel's nose, boldly drawn; mouth slightly open, with driver's stick or rope showing behind. Painted dull pinkish red. Soft brownish wove paper, fairly thick. General style strongly recalls *Ser.* iv. Pl. XCVI, Ch. 00207. 2¾" × 2".

D.K. 055. b. Fr. of Tib. wooden doc. Slip, broken at one end, and pierced with hole at other; inscr. on each side with three ll. Tib., fairly clear. 4" × ⅝" × ¼".

D.K. 056. Fr. of painted wooden board; traces only of painting on one side. Rev. perished, prob. partly by heat. 11¼" × 4½" × ⅜".

D.K. 057. Fr. of painted wooden panel. Broken in two, with chamfered edge on one side. *Obv.* decoration almost obliterated, but prob. consists of seated Buddhas. *Rev.* a diaper of circles in red containing seated Buddhas with lotus haloes; in spandrels, trefoils. Patches of brilliant blue scattered all over. Much defaced, and hastily painted. Hole near one end. Perhaps part of Pōthī cover. 15⅞" × 3¾" × ⅜". Pl. XII.

D.K. 095–0100. Stucco relief frs. Parts of five seated Buddha plaques from one mould; 097 and 0100 joining. Buddha seated on half-opened lotus against circular halo, L. hand resting below L. thigh and grasping robe; R. hand raised in Abhaya-mudrā. Traces of pink on robes. For type cf. *Anc. Khotan*, ii. Pl. LIV, D. II. 10. Most complete fr. 4¼" × 3¼".

D.K. 0101. Painted wooden panel; R. edge broken off. On obv. remains of standing Bodhisattva, Indian type, with three-leaved crown; hands together before lower part of body, holding lotus bud (?). Flesh pink over white. On rev. traces only of blue and pink paint. 1' 1½" × 5½". Pl. XIII.

D.K. 0102. Painted wooden panel, with slightly arched top (chamfered); L. edge broken off. Surfaces roughly hacked before being painted. On obv. remains of Buddha seated in meditation; rough work in crimson, buff, and black; upper half of fig. completely destroyed. On rev. four small Buddhas seated in meditation ¾ to L., as in wall diaper; pointed flames on shoulders. This side has remains of 1" wide flange on L. edge, hacked away. 11" × 7½" × ¾" to 1¼". Pl. XIII.

D.K. 0103. Stucco relief fr. R. hand of Buddha, over life-size, webbed. Fingers extended straight as in Abhaya-mudrā. Remains of white paint. Back not worked. Material, soft red clay mixed with straw; straw core. Length 9¾", gr. width 6¾". Pl. IX.

D.K. 0104. Fr. of Tib. wooden doc. Sq. stick, painted pink on one side, and having traces on one l. Tib. writing on this and adjacent face. 1⅝" × ½" × ⅜".

D.K. 0104. a–c. Stucco relief frs. comprising: *a.* Wide strip of double lotus-petal border, flat, straight; of same type as *Serindia*, iv. Pl. XVI, Kha. ii. c. 004, but with a row of petals on either side of the row of beads. One row of petals painted dark grey; the other shows traces of the same on tips, otherwise retaining only white under-wash. Broken in three. 5" × 3¼". Pl. IX.

b. Two beads from beaded border, showing remains of blue paint, and red at base. 1¼" × 7/16" × ⅜". *c.* Flat ornamental band, of double row of beads, broken after every second pair by large sq. jewel or rosette. Surface worn and details lost; broken in two. 2¾" × ⅞".

D.K. 0171. Carnelian intaglio, oval, with engraved Brāhmī inscription: *Nandila-śrī* (Dr. L. Barnett). Size of top face *c.* 7/16" × 5/16". Pl. X.

OBJECTS SAID TO HAVE BEEN BROUGHT FROM KHĀDALIK

Kha. 01. Stucco relief fr., from Buddha plaque showing head and halo on L. p. Surface much worn and features effaced. White stucco, with traces of bright blue paint on hair and red on halo. Gr. M. 2".

Kha. 02. Stucco relief fr. Conventionalized semi-floral orn., showing vertical stalk or leaf, expanding to rounded lower end, and supporting three circular beads or flowers on top. Incised line down middle of leaf. Hard white stucco. H. 2⅝", gr. width 1¾". Pl. V.

Kha. 03. Terra-cotta relief fr. Bodhisattva head, with fr. of halo. Face sharp-featured, with long eyes, prominent nose, and small chin. Elaborate head-dress with orn. over forehead of flower with hanging seed-vessel, exactly as *Ser.* iv. Pl. VIII, A. T. v. 0039, in miniature, and streamers tied in large bows at ears. Red, burnt hard. Fair condition. H. 1⅝". Pl. II.

Kha. 053. Bronze spoon; 'fiddle shape', with narrow neck between handle and shallow bowl. Slightly curved. Well made and in perfect condition. Length 5"; gr. width of bowl 1¼".

OBJECTS SAID TO HAVE BEEN FOUND NEAR ULŪGH-MAZĀR

Ulūgh-mazār 01. Fr. of carved wooden nimbus; circular when complete with ogee-shaped extension above. About ¼ of L. side was formed of separate piece (missing), butted to remaining piece and held by two short clamps partly sunk into back. R. edge broken away.

Obv. carved in low relief, with emblem of wheel represented as a sun-disc in centre with eight waving rays streaming from it to raised border. The lower central ray is not carved, because covered by neck of figure to which nimbus was fitted; but the missing ray has been painted on the wedge-shaped blank space left.

Between rays are eight six-petalled lotuses, with outer row of petals showing between inner. Seed-table raised and flat with seed cavities painted as rings. The two lowest lotuses are uncarved where they were covered by figure. Raised border carved into simple pointed leaves or petals placed cable-wise, with pearls between leaves. Ogee extension above, carved as waving flames.

Whole seems to have been coated with 'priming' of pink over which other colours were painted. Rays are divided by channelled 'midrib', and the two halves painted in contrasting colours, such as pink and blue (?), dark red, and pink, &c. Lotuses dark red with green (?) seed-tables with red rings. Border and flames above, in arrangement of same colours. All colours badly worn and discoloured. In centre of disc and in uncarved space below, two rectangular holes for pins to secure nimbus to figure.

Rev. painted only with Buddha seated cross-legged on seed-table of lotus. R. hand raised in Abhaya-mudrā; L., down near R. foot, palm outwards, fingers flexed, partly broken away. Wears red robe over green under-robe visible at neck. Flaming jewel painted at breast. Wheel symbol painted in palm of hand, Svastika and Saṅkha (?) on upturned soles of feet. Face round, of Indian type, outlined red, with black eyebrows, eyelids, nostrils, and corners of mouth; formal high lights in white or pale pink.

Circular nimbus, red near head surrounded by grey-blue border, outlined pale buff. Halo to body, elliptical, dark grey (?) next body; surrounded by red and buff bands, the buff spotted with red and green, and the bands divided by light lines. Outside buff band is a flame edge rising in long flames into ogee top. Surface damaged, worn, and faded. H. 2' 2½", gr. width of fr. 10¼". Pl. XIII, XIV.

OBJECTS BROUGHT FROM TATIS NEAR ULŪGH-ZIĀRAT

U.Z. 01. Yellow stone seal; sq., with rounded back pierced for suspension. Device; a crane with ruffled wings, exactly as *Ser.* iv. Pl. V, Yo. 00159. Face ⅞" sq., h. $\frac{9}{16}$". Pl. CXI.

U.Z. 02. Bronze seal; flat, seven-sided, with pierced shank at back. Device: deeply cut lapidary Chin. char. (?) Good condition. [At the top is 大 *ta*, great, below which appears to be a single character of which I can make nothing.—Mr. L. C. Hopkins.] 1" × ⅞". Pl. CXI.

U.Z. 03. Fr. of bronze sheath orn.; cf. Tajik. 01. Part of one side only; long hollow case, pointed at one end, broken at other. Surface orn. with conventional floral relief, probably a pomegranate between long leaves crossing above in an ogee shape, and terminating in trefoils. Fair condition. 1¼" × ½" × ¼". Pl. X.

U.Z. 04. Carved steatite object, prob. miniature squatting monkey with hands to chin, head looking up. Hole drilled between body and knees (missing). 1" × ½" × ¾". Pl. X.

U.Z. 05. Wooden seal, round, with handle at back, broken; broken away at one side where hole appears to have been drilled. Stout figure seated on throne; L. hand uplifted with curved sword, R. hand holding mace (head down). Face projecting (rat ?); two sharp pointed small ears. No drapery folds, but triangular apron in front. Well and simply cut in fine-grained wood. Two minute holes on side of break as for rivets. Diam. 1¼". Pl. CXI.

U.Z. 06. Bronze buckle; small, D-shaped, with remains of tongue. ⅞" × $\frac{9}{16}$". Pl. XI.

U.Z. 07. Stone seal; irreg. square, flat; remains of loop-handle on back. On face, four stems spring from centre where they are voluted. Each stem runs to a corner and then turns in a crude leaf-form, parallel to a side of square, occupying the triangular fourth of square area. Plain border surrounds the whole. Very rough work. Hole pierced through centre. ¾" sq., thickness ¼". Pl. CXI.

OBJECTS SAID TO HAVE BEEN BROUGHT FROM BALAWASTE

Bal. 01. a–b. Fresco frs. of vertical border, light grey, orn. with series of Buddhas seated in meditation within long elliptical panels. Panels formed by undulating lotus stems carrying buds at the spandrels; cf. *Ser.* iv. Pl. XII, Kha. i. E. 0050. Buddhas as in Buddha diapers, Kuduk-köl. 024, &c. Bands of buff, grey, and red at sides. Gr. fr. 10¼" × 9¼".

Bal. 02. Fresco fr. To L. p. a tree of horse-chestnut type as seen behind Buddha in some Gandhāra sculptures, and in painted silks from Tun-huang (cf. *Th. Buddhas*, Pl. XI). Against the tree, which is painted as an elliptical mass of dark green with leaves, &c., large shapes in white and red not understood. To R. p. is baldachino in red outline, supported by columns whose capital consists of a group of three inverted enclosed palmettes. These support an ornamented architrave, carrying an attic story

flanked by small columns of Gandhāra type; the upper member of their capital an inverted enclosed palmette, suggestive of an inverted Ionic capital. Between attic columns a frieze of birds.

Above attic is central finial of shrine, containing rail and lotus beneath a conical roof terminated by a six-tiered umbrella and disc. At each side is smaller pointed finial with conical umbrella terminal and disc. Between baldachino and tree is duck, facing shrine. Background pale green. Above is band of orn. divided into rectang. panels; each panel has centre rosette and is further subdivided by its two diagonals into four triangles alternately red and buff, as in Byzantine work. 8¼" × 8".

Bal. 03. Fresco fr. Head of Bodhisattva ¾ to R. p., bending down. Elaborate tiara containing Dhyāni-buddha. Pink flesh, grey nimbus, pale green halo, red ground. To R. p. a vertical band of grey. Surface much perished. 7" × 5½".

Bal. 04. Fresco fr. Upper half of seated Buddha as in wall diapers, ¾ to R. p., in red brown robe. To L. p. a curved buff band of imbricated scales similar to that on Bal. 05. a. Much defaced. 7½" × 8".

Bal. 05. a–h. Eight fresco frs. In red outline on white and buff a mass of standing Buddhas, mostly in Abhaya-mudrā, overlapping one another, and radiating in various directions. Nimbi edged with lotus petals. Eyebrows, upper eyelids, and eyes black. At L. p. upper corner of 05. a. a curved border of imbricated scales in buff. Surface much broken. For continuation on R. see Bal. 0120. Gr. fr. 12½" × 11½".

Bal. 06–047. Fresco frs. Series of Buddhas seated in meditation, ¾ to R. p., forming part of diapered wall surface; in interchanging colours—red, buff, grey, maroon, and white. Cf. *Ser.* iv. Pl. XI, Kha. i. c. 0097, lower part. Gr. fr. (*047*) 9½" × 1' 3½".

Bal. 048. Stucco relief fr. from border ornament. Cabochon jewel surrounded by pearls, with band (plain), on one side; other side broken away. Below, acanthus orn. deeply modelled. White plaster. 2¾" × 2¼". Pl. V.

Bal. 049. Stucco relief fr.: upper part of Gandharvī, hands upraised. Much broken and defaced. Hard (burnt) white plaster. 3" × 2½".

Bal. 050. Stucco relief fr. Gandharvī rising from open lotus, full face to spectator. Head as in Bal. 075–6 but smaller. Arms upraised, holding heavy twisted garland. Remains of white ground and of red paint on lotus petals. Cf. for type *Anc. Khotan*, ii. Pl. LVI, D.T. 02. Hard grey plaster. H. 4½". Pl. IV.

Bal. 051. Stucco relief fr. Gandharvī head slightly to R. p., with part of halo. Hair and ear-rings as in Bal. 075–6, Pl. IV; traces of pink, red, and black colour. Much defaced. Cf. *Ser.* iv. Pl. XV, Kha. i. E. 0039. Hard white plaster. 3¼" × 2¾".

Bal. 052. Stucco relief fr. Head of Buddha with nimbus bordered with cable or petal pattern. Much defaced. Remains of red and pink colour. Fibrous red clay. 2½" × 2".

Bal. 053. Stucco relief fr. Gandharvī head similar to Bal. 075–6, Pl. IV. White plaster; much abraded. 2¼" × 1¾".

Bal. 054. Stucco relief fr. Head and halo of Gandharvī with upraised hands. Hard white (burnt) plaster; much defaced. 2¼" × 1¾".

Bal. 055. Fr. of stucco relief plaque, showing lower part of seated Buddha. Hands concealed under fall of drapery in lap, feet pendent with toes curled towards each other. Lotus halo. Type as *Ser.* iv. Pl. VIII, A. T. iii. 0089. Grey clay, burnt. 2⅝" × 1⅞".

Bal. 056. Stucco relief fr. Upper part of clenched hand. Thumb and two first fingers present, with hole drilled for object clasped (missing). Cf. *Ser.* iv. Pl. VIII, A. T. v. 0072. Red clay, prob. slightly burnt. 1⅞" × 1¾" × 1".

Bal. 057. Stucco relief fr. Human nose, about life-size, well modelled. Remains of light paint. Nostrils plugged. Clay, burnt. Length 1½".

Bal. 058. Stucco relief fr. Eight-petalled rosette; traces of colour. Red clay, slightly burnt. Diam. 2⅜".

Bal. 059. Stucco relief fr. from ornamental detail. Two long bunches of diverging petals issuing from pomegranate flower calyx. White plaster. 1½" × 1½". Pl. V.

Bal. 060. Stucco relief fr. Head of Gandharvī from same mould as Bal. 050. White plaster; weathered. 1¼" × 1⅜".

Bal. 061. Stucco relief fr. Upper half of standing Buddha in Abhaya-mudrā, red robe, nimbus bordered with imbricated scales. Cf. *Anc. Khotan*, ii, Pl. LIV, D. II. 34. White plaster. 4½" × 3".

Bal. 062–4. Stucco relief frs. Buddha heads prob. from seated Buddha figs., being from same mould as Bal. 066, Pl. IV. Red clay, burnt. Largest 1⅜" × 1$\frac{5}{16}$".

Bal. 065. Stucco relief fr. Buddha head. White plaster; much abraded. 1¾" × 1⅜".

Bal. 066. Stucco relief fr. of seated Buddha; hands in lap, feet pendent with toes curled towards each other. Upper part of face and head missing. Material burnt red clay. Prob. from plaque; cf. *Ser.* iv. Pl. XV, Kha. 05. 4½" × 4". Pl. IV.

Bal. 067. a, b–070. Stucco relief frs. of standing Buddhas in Abhaya-mudrā, prob. from ground of large halo. Cf. *Anc. Khotan*, ii. Pl. LIV, D. II. 34; *Ser.* iv. Pl. XV, Kha. i. C. 008. Remains of pink paint. Hard white plaster. Largest 4¼" × 2¼".

Bal. 071. Stucco relief fr. Buddha seated in meditation on inverted cone-shape lotus; hands in lap, drapery symmetrically festooned in front below hands. Head and halo missing; cf. *Ser.* iv. Pl. XV, Kha. i. S.W. 0010. White plaster. 2½" × 2¼".

Bal. 072–4. Stucco relief frs. Lower parts of standing Buddhas resembling Bal. 067 sqq., but from different mould. Hard white plaster. 3¼" × 2¼".

Bal. 075–6. Stucco relief frs. Two floating Gandharvīs carrying swag of drapery in upraised hands, a jewel in centre. Costume consists of beaded necklace, girdle with attached festoons over hips, armlets and large ear-rings. Edges of cloak seem to appear at shoulders. Coiffure loose and wavy over ears, with high loop at crown tied with cinctures. Body curved gracefully R. p. to L. p.; legs crossed; sole of R. foot upturned. Background dented like lotus seed-table. Traces of pink discoloured in part to green. For similar type, see *Ser. iv*, Pl. XV, Kha. i. E. 0039. White plaster. Well modelled. 4¼" × 4¼". Pl. IV.

Bal. 077–80. Stucco relief frs. Buddha heads with nimbus, from same mould; long narrow eyes, wide mouth, small nose, and short curly hair. Good work. White plaster, burnt. Largest (with neck and part of nimbus) 2" × 1½". Pl. V.

Bal. 081–2. Stucco relief frs. Lotus-bud pedestals with Buddha feet, resting on top; cf. *Ser. iv*, Pl. X, K.S. 007. White plaster (burnt). 1½" × 1½".

Bal. 083. Stucco relief plaque; Buddha seated in meditation on lotus. Plain circular halo and vesica with incised line in each, indicating width of border. Feet hidden by robe. No traces of paint. R. side of vesica gone. Hard white plaster. H. 4½".

Bal. 084. Stucco relief fr. Lower half of Gandharvī kneeling on R. knee, ¾ to R. Same type as *Ser. iv*, Pl. XV, Kha. ii. N.W. 003; but background broken away close to fig. Remains of light red paint on robe and grey on stole. Hard white plaster. H. 2½".

Bal. 085. Stucco relief fr. End of fold of drapery, with remains of gilding in hollows. Hard white plaster. Length 2½".

Bal. 086. Stucco relief fr. Head of (standing) Buddha, same type as that of Bal. 061 and prob. from same mould; much worn. Remains of green paint on halo, black on hair, and of gilding on neck and ear. Hard white plaster. H. 2½".

Bal. 087–8. Stucco relief frs. Two Buddha heads with circular haloes, from standing figs. of type of *Ser. iv*, Pl. XV, Kha. i. C. 008. Traces of light red and black paint. Much defaced. Hard white plaster. Gr. M. 2¼".

Bal. 089–90. Stucco relief frs. Two heads, prob. of Apsaras, slightly to R. Round youthful faces, eyes slightly oblique, black hair flat (?) on top of head and falling straight towards shoulders; remains of fillet-like head-dress with triple flower-orn. (?) in front. Remains of white paint. Hard grey plaster; worn. H. 1½" and 1¼". Pl. V.

Bal. 091. Stucco relief fr. Gandharvī head ¾ to L., with remains of circular halo on R. Black hair tied in loop on top. From same mould as Bal. 051. Hard grey plaster; worn. H. 2".

Bal. 092. Stucco relief fr. Lower part of face, mouth, chin, end of nose and R. cheek adjoining, features of conventional Buddha type. Strongly modelled, with deep depression at corner of mouth and below centre of lower lip. Remains of white dip. Clay, burnt hard on surface, but influence of fire not extending far, the back being quite soft. Gr. M. 2¼".

Bal. 093. Stucco fr. Life-size thumb (two end joints). Covered with bright pink paint, now much effaced; nail marked in red. Soft clay mixed with fibre, and unburnt. Length 2¾".

Bal. 094. Fresco. On red ground (on which scrolls are faintly visible) an elliptical panel, half bordered by green band disappearing behind, and continued in straight band downwards. Within panel is galloping yellow horse outlined red, having green collar with long wind-blown ends; marked on quarter with Svastika and a horizontal ∞ shape, and on flank by annulet with projection at lower edge.

Below horse, in centre, a six-pointed star formed of two interlaced triangles; to R. p. an annulet with projection to R. p. side (green); to L. p. a four-petalled rosette; to L. p. of this a circle (?) with centre spot; above tail, an annulet. At top of ellipse is straight yellow band below green. Upper and L. edge of fr. broken away. May represent neck or stomach portion of garments of figure, or decoration applied to flesh. Surface flaking off. 9½" × 6".

Bal. 095. Fresco fr.; Buddha seated in meditation; red robe, green halo, pink nimbus, red ground. Above and below parts of similar figs. in different colouring. Part of diaper. 7¼" × 3¾".

Bal. 096. Fresco fr. Bodhisattva seated within vesica; body nude (?), red Dhōtī, hands in lap holding tall flask. Head ¾ to L. p., tiara, necklet, and massive carcanet. Flesh pale pink; all outlines red. Background red-brown, and oblique band of purple-brown to L. p. Much damaged. 10½" × 8".

Bal. 097. Fresco; upper part of face ¾ to L. p., over which, and attached to tenia, is animal's head with open jaws and tiara. Prob. part of Trimūrti. 3" × 2¼".

Bal. 098. Fresco; upper part of princely fig. playing harp (cf. 'Apollo' fig. in panel on Stūpa base from Sikri in Lahore Museum). Costume: closely fitting vest (or nude ?), neck-band, elaborate jewelled armlet, bracelets, ear-rings. Long black hair nearly covered by elaborate Pagrī of red cloth orn. with strings of pearls. Harp (carefully studied) of gold (yellow). Eyes dreamy; mouth slightly open (singing ?); small moustache; Tilaka, horizontal red line on cheek below eye. Thin grey stole over R. arm. Hand, graceful and carefully drawn, is plucking strings. 10½" × 10".

Bal. 099. Fresco; head of Buddha ¾ to L. p., eyes half closed and dreamy. Nimbus dark green with pink border. Robe red-brown. Hair black, close cropped, and in hard line over forehead. Cheeks full, mouth small. 6" × 7½".

Bal. 0100. Fresco fr.; Buddha seated in meditation, as from wall diaper; ¾ to R. p., hands in lap; red robe; pink nimbus with dark centre; pink Padmāsana without detail of petals. Deep red border to halo. Much damaged. 12" × 8¼".

Bal. 0101. Fresco fr.; life-size L. foot, white, resting on white lotus with buff centre surrounded by pinkish ray. Above ankle, edge of dark red-brown drapery in many rippling folds, edged thin white, with black contours. To L. p. of hem of garment lower part of fig. in maroon robe seated cross-legged on blue lotus with white seed-table. Background similar to that of Bal. 0102 with differences in detail; both generally Byzantine in character. Backing mud and straw. 15" × 11".

Bal. 0102. Fresco fr.; part of feet and ankles with lower edge of garment. Green lotus with buff centre under each foot; a ring of white dots round centre and seeds represented by small red rings. Flesh pink (shaded), outlined red.

Garment red, yellow-lined, and green-bordered, with white pattern of rosettes composed of four dots *semé* over R. ankle; over L. same border but field obliquely striped, in broad dark red, lighter red, and blue bands with white patterns. These consist of: on the red, a centre row of long white lozenge-shape double palmettes of fine limbs, formed by two simple palmettes joined base to base in the manner of a 'turnover' pattern, the stems thus forming continuous lines. Above and below, halves of the same pattern, in yellow, the longitudinal centre line coming on the outer side.

Just within each edge of red band is a wavy white line forming border. On the blue band are rosettes of four white dots, as over R. ankle. Ground behind lotuses, red-brown with white star flowers *semé*; below, buff line under which is again red-brown. Above lotuses, lighter red with star flower. Drawing clumsy. 17" × 11½".

Bal. 0103. Fresco fr.; head and one paw of tiger-skin, prob. part of costume of fig. of which the green and blue background is prob. another part. 6" × 6".

Bal. 0104. Fresco fr.; pair of ducks facing each other. Beak and breast-line only remain of duck on R. Duck on L. has wings uplifted, buff body, white head and neck, buff and white wings. Background grey with darker grey swirling lines (water). Above is bank, black, with flowers growing. 4" × 3½".

Bal. 0105. Fresco fr.; large jewel consisting of white ball surmounted by three small ones, the whole resting on black ground surrounded by white ring (in perspective), and supported by three acanthus leaves (?) rising from arching band. R. and L. are similar rings and jewels (?). Perhaps part of Mukuṭa of large fig. Much defaced. 6¼" × 6".

Bal. 0106. Fresco fr.; haloed head (Buddha ?), ¾ to R. p. Very arched eyebrows, small chin, red robe. Flesh white with red outlines, eyebrows black. Much defaced. 7" × 4½".

Bal. 0107. Fresco fr., much defaced. Appears to be front part of seated elephant, with shapeless legs. Trunk is the usual baggy one of Chinese artists. A shrine prob. to L. p. 5½" × 5¼".

Bal. 0108. Fresco fr. R. foot and leg to knee, in profile, of standing fig. Similar in size and style to Bal. 0101, 0102. Foot pink, shaded with umber (much flaked off), with dark red outlines. Rests on dark olive-green elliptical mat or cushion, lotus leaf with petal-tips of pink lotus (apparently placed between feet) just reaching heel.

Legs above ankle hidden by stiff-hanging robe painted in broad sloping stripes of maroon, blue, white, black, and again maroon. These stripes are again orn. with series of double palmettes forming elongated lozenges and half-lozenges, in white, yellow, or pink.

On either side of leg is an opening in robe, marked by vertical series of stiff zigzag folds. Border of robe bright green over grey, green almost completely lost; inner border, maroon and buff. Background below ankle maroon; above, somewhat lighter red, divided by thin white line. Former strewn with green or dark red trefoils spotted with white, and white star-like flowers; latter with similar blue trefoils and yellow stars. Part of hanging scarf (?), red and white, to L. of leg drapery. Fair condition. 1' 4" × 9½".

Bal. 0109–10. Fresco fr. in grey and red, with white curved dividing lines; prob. from Bal. 0101, 2, or 8. 2" × 1½".

Bal. 0111. Fresco fr., of seated Buddha diaper, similar to Bal. 06, &c., but slightly larger scale. 7½" × 6".

Bal. 0112. Fresco fr., very much defaced. Near lower edge, upper part of halo of seated Buddha prob. of type Bal. 06. Above appear faint architectural lines (prob. roof) in red, at various angles; below these is decorative frieze similar to that on Bal. 0114. At top L. p. corner, panel with lotus beside which is seated worshipping fig. All very indistinct. 11" × 9".

Bal. 0113. Fresco fr. of Buddha diaper, similar to Bal. 06, but rounded in drawing. Heads, haloes, and draperies characterized by lines more nearly circular than examples referred to. More variety of colour also, including pink, red, buff shades of blue and grey. 12½" × 7¼".

Bal. 0114. Fresco fr. Upper part of Buddha to front, in Dharmacakra-mudrā (?). Above, a frieze of clusters of red flowers on looping stems. Indistinct and abraded. 6" × 5½".

Bal. 0115. Fresco fr. of Buddha diaper, head and neck only, to larger scale than Bal. 06. Much defaced. 4" × 3".

Bal. 0116. Fresco fr. Haloed fig., perhaps Maitreya, seated European fashion on lotus cushion. Feet rest on lotus footstool with toes turned well out; knees wide apart.

Outer robe brown; under garment white, showing at ankles and R. hip. R. arm bare; painted yellow, all other parts broken away. R. and L. adoring attendant figs. To R. p. vertical bands of red, from behind which one of the attendants is looking. Lotus cushion has frill of green suggesting petals, and top chequered to suggest seed-table; lotus rests on square mat. Colour much abraded. Backing as Bal. 0117. 6¼″ × 5¼″.

Bal. 0117. Fresco fr., showing kneeling (?) fig. of youth, with shaven head and tuft of hair at side, dressed in long buff coat; black belt with four short tabs (sword slings ?) at L. side, and black boots. Reaches up with R. hand, in which is brush or chisel, performing some operation on pyramidal shrine (outlined red), on base of which are portions of two written chars. (Brāhmī) in black.

Background above, dark red; below shrine and fig. a black band on which are rows of triangular shapes composed of red and white dots. Across R. upper corner diagonal bands of grey and pink. Fine fibrous mud, backed with coarse. 7″ × 6¼″.

Bal. 0118. Fresco fr. of predella, showing donors kneeling to L. p., hands together holding lotus buds. Front fig. bearded on chin; cheeks shaven, moustache, full eyes, black hair hanging to shoulders; wears close-fitting narrow-waisted long coat, buff, with collar, cuffs and band down front and round skirt of orange spotted diagonally with white; also black belt, with slings in front holding sword (or knife) and kidney-shaped pouch at hip.

Second fig. (front only) similar, but coat only to hips. Ground dark red. The whole closely resembles second and third figs. in *Ser.* iv. Pl. CXXVI, Tar. 009. 6″ × 7″.

Bal. 0119. Fresco fr.; upper part of Buddha ¾ to R. p.; brown robe, green vesica, buff nimbus, red brown background divided from band of purple brown to R. p. by thin white line. Style and type of *Ser.* iv. Pl. XI, Kha. i. 0054. 7″ × 6″.

Bal. 0120. Fresco fr.; Buddha, seated ¾ to R. p. in meditation, as in Buddha diapers. Red robe, green (perished) halo. To R. p., border of buff imbricated scales and edge of red-outlined nimbus, similar to those on Bal. 05. a., to which fr. evidently belongs. 9¼″ × 7¼″.

Bal. 0121. Fresco fr., showing part of two figs. kneeling side by side, hands together in adoration, ¾ to L. On R., haloed warrior fig., heels and L. side lost. Armour generally resembling that found on Lokapālas (cf. *Ser.* iv. Pl. LXXXIV, LXXXV), but not treated in detail. Fig. has necklace, bracelets, mass of black hair falling behind R. shoulder.

On L., boy; details of dress effaced except for close-fitting tunic with square-cut neck and snake (?) hood or cowl, the snake's head and neck rising erect above the boy's. Drawn in red outline with touches only of black, and washes of white or grey; background behind boy, pale green. Before knees of figs. is a table-like band, painted blue, outlined red. 4¼″ × 3¼″.

Bal. 0122. Fresco fr. Flat fr. of fine stucco, with remains of painting on front and back. On one, part of Buddha (?) face, drawn in red and black; on other, fr. of blue border orn. with scrolls in red and white. 6″ × 3″.

Bal. 0123. Fresco fr., with painted surface front and back like the preceding. *Obv.* Buddha head, ¾ to L., looking down; curved features. *Rev.* in L. corner, small Buddha head, ¾ to R. Remainder is white with red outlines and traces of blue flower orn.; subject indistinguishable. Gr. M. 5½″ × 6¾″.

Bal. 0124. Fresco fr., split off a double-fronted piece like the preceding. Remains only of Buddha head ¾ to R. and curving lotus stem, in white and red. 4″ × 2½″.

Bal. 0125. a–b. Two fresco frs., portions of one design but not joining; evidently from double-fronted painting like the preceding, showing number of small scattered Buddhas seated in meditation. Rough work. Gr. fr. 7½″ × 6″.

Bal. 0126. Fresco fr., showing part of lotus plant, one flower supporting a seated Buddha (fragmentary). Colouring mostly white, with red outlines, on plain green background; some blue. Gr. M. 5¼″.

Bal. 0127. Fresco fr., showing girl kneeling in adoration ¾ to R., lotus-bud between hands. Drawn entirely in red outline with black eyes, eyebrows, and hair. Latter parted in middle and done in roll round neck; dress apparently a long jacket, no detail shown. Object of adoration, a standing Buddha whose R. foot rests on large lotus, almost completely effaced. 5¼″ × 7¼″.

Bal. 0128. Fresco fr., painted front and back as Bal. 0123, and showing on R. orig. R. edge slightly curved. *Obv.* slightly curved green and pink border of vesica, with fr. of red robe and outstretched hand within. *Rev.* by edge, blue border orn. with red and white plant design; within Buddha seated ¾ to R. 8″ × 5¼″.

Bal. 0129. Misc. fresco frs., on thin fine layer of stucco, evidently facing of one side of double-fronted painting like the preceding. Three frs., apparently adjoining, showing hanging L. hand and flying white stole, outlined red, with kneeling fig. (yellow) in blue Dhōtī on R. Chief of other frs., not joining, show (*a*) male face (Gaṇeśa ?), in white peaked cap, ¾ to R.; (*b*) L. bent arm and part of body of male (?) fig., arm covered with long clinging sleeve in red and white; (*c*) seed vessel in middle of white lotus. Gr. M. 4″.

Bal. 0130–2. Three fresco frs. 0131 and 0132 show impress of reeds on back of clay; 0130 painted on each side. *0132* shows seated fig. ¾ to L., prob. monk, against blue background. Colour gone from robe; face lost above chin. Much effaced. *0131*, perhaps adjoining, shows face of monk ¾ to L., with green circular nimbus. *0130* shows Buddha head, ¾ to R., with grey circular nimbus, and blue vesica red-rimmed. Flesh white, out-

lined red. On rev. part of vesica (?) of variegated rings of green and white, and red robe (?). Gr. M. 5¼".

Bal. 0133. Fr. of painted wood with seated Buddha; head ¾ to R. p., grey robe, blue lotus, red ground and blue nimbus. Outlines black. Much defaced. 6¼" × 2½" × 1".

Bal. 0134. Fr. of painted wood. Traces only of paint, red and blue on both sides. 6¾" × ¾" × $\frac{7}{16}$".

Bal. 0135–7. Three flakes of painted wood, showing white and pink cloud scrolls outlined black. Gr. fr. 4¼" × 1$\frac{3}{16}$".

Section IV.—THE NIYA SITE REVISITED

March to Niya oasis.

During a busy halt of three days at Keriya town I was able to attend to much practical work, and to secure the hire of twelve additional camels. Information that had reached me opportunely while at Khotan through Ibrāhīm, 'the miller', my old guide of 1901 and 1906, induced me then to spare time for a renewed visit to the fascinating remains of the ancient site beyond the termination of the Niya river, buried by the desert sands since the third century A. D. By December 8th I reached the small oasis of Niya. There Ibrāhīm's statement that ruined houses had been traced to the south of the area previously explored by me was after some tergiversations confirmed by 'Azīm Pāwān, a Niya hunter, who was reported to have come upon them a year or two earlier. The effective orders issued by Tai Ta-lo-yeh, the scholarly and helpful Amban of Keriya, and the friendly recollection the local people had preserved of my previous visits, made it possible to raise within a single day forty labourers as well as the month's supplies required by my caravan for the journey to distant Charchan.

Termination of Niya river.

The three rapid marches that carried us beyond Imām-Ja'far-Sādiq's shrine (Map No. 19. B. 1, 2) lay along the usual pilgrims' track, which I had previously followed. The only changes here noted had reference to the terminal course of the Niya river. The abundant summer floods of the preceding two years had caused it partially to revert to the old eastern bed, which was found completely dry in 1906. Near Chuk-toghrak, some miles above the bifurcation of the two beds, the river still carried about 100 cubic feet of water per second. But most of this volume is soon lost in the wide riverine belt of fine grazing and jungle farther down, and where we met the dying river course again about two miles above Imām-Ja'far-Sādiq, it had shrunk to only about 7 cubic feet per second. But even so the available water had permitted a new small 'Tārīm', cultivated by three families, to be opened at Yoghanche, some four miles farther up, in addition to the other little patches of cultivation at Kapak-askan and Kutaklik-tārīm already noted in the 1906 map.

Colony of Tülküch-köl-tārīm.

An observation made at Tülküch-köl-tārīm, the last tiny colony situated about two miles below the sacred settlement (see map in Pl. 4), was of distinct geographical and also antiquarian interest. In 1906 I had noted the fertility of its fields cleared in the luxuriant jungle, and during the following few years the little colony had increased to about fifteen households, new settlers having been brought there from Keriya by Nūrullah, its founder.[1] When pitching my camp there on the evening of December 12th I noticed the marked extension of the carefully fenced fields and the comfortable new house in timber-and-wattle that Nūrullah had since 1906 built for himself. In a large orchard planted at the same time fruit trees of different kinds had grown to a fair height, pleasing evidence of the fertility of the soil.

Canal head destroyed by flood.

Unfortunately the unusually large summer floods of the last three years instead of benefiting Nūrullah had spelt misfortune for his colony and threatened to bring about its extinction. They had caused the water carried by the terminal channel to take a more westerly course, reverting towards the old deep-cut 'Yār' which our previous survey shows, and had carried off the barrage upon which the canal irrigating the Tülküch-köl fields depended for its service. The supply received by them in 1911 and 1912 from a small newly made canal had been quite inadequate,

[1] Cf. *Ruins of Khotan*, p. 350; *Serindia*, i. p. 212.

ample as was the *ak-su* of those summers, and after the failure of two crops Nūrullah's new settlers all deserted him in the winter preceding my visit. His hope of restoring cultivation in his colony depended upon damming up the new bed by a *tugh* at a point about half a mile below the position of the former barrage, where the bed passed between two high tamarisk-cones and where it was some twenty feet deep (Fig. 105). But to secure the labour needed for this task was beyond Nūrullah's resources or those of the Mazār Shaikhs to whom he owed a tithe on the land, and an attempt made with a few local men failed. So although a little wheat had been harvested in 1913 and the fruit trees were still alive, there was danger of the complete abandonment of the colony.

Abandonment of colony.

These facts ascertained by me on the spot supply instructive evidence of the precarious character of cultivation in all terminal oases, whether large or small. They also strikingly illustrate —what I have discussed at length elsewhere—how varied the causes which may lead to their abandonment, whether gradual or sudden, and how difficult it may be at a later date, in the absence of direct contemporary record, to determine the true cause.[8] We have here a clear instance of cultivation at the very termination of a river brought to an end not from want of water, such as would result from 'desiccation', whether progressive or temporary, but on the contrary by its increased volume and a change in the river course with which the available local resources were unable to cope under the prevailing economic and administrative conditions. Nūrullah's colonists would have been well able to maintain and extend their little oasis with the previous volume of water. But when its increase during the last three years finally led to a diversion of the stream into a new channel they were unable to meet the emergency, and abandonment of their holdings followed rapidly.

Cause of abandonment difficult to determine later.

These observations must convey to the critical student a lesson of obvious antiquarian interest; for assuming that this abandonment of Tülküch-köl were to be final and Nūrullah's large dwelling came to be invaded and in time buried by the ever present drift-sand, there would be as little chance of its explorer, centuries hence, arriving at a definite conclusion regarding the true cause of the abandonment as we have now in respect of the ancient settlement in the desert beyond. Only contemporary record can definitely clear up the doubts and varied possibilities involved by an archaeological question of this nature, and unfortunately there is little hope of such a record being found among all the ancient Kharoṣṭhī documents that the Niya Site has preserved.

Construction of new barrage.

I may mention here that my timely return to the Niya Site incidentally offered a chance of saving the Tülküch-tārīm. My resumed excavations had brought a comparatively large force of able-bodied labourers near the spot. So when I had returned with them from the ruins and was leaving for Charchan I was glad to set them to work to raise a new *tugh* across the deep-cut flood-bed at the point where Nūrullah's previous effort had failed. The work was expected to take about five days, and as I deposited the sum needed for the men's wages with the Mazār Shaikhs whose prayers duly preceded the start, they set to work with a will (Fig. 105). Skilled carpenters were among them for the construction of the needed pile-framework and abundant timber was close at hand, so that completion of the little canal head was assured. It was only just in time; for owing to the protection afforded by the ice now rapidly forming on the lakelets near the Mazār the winter supply of *kara-su* from springs in the terminal bed of the Niya river was expected to descend in the Yār towards Tülküch-köl very shortly, and its arrival would have impeded the work at the new barrage.

On the same occasion I ascertained that the total volume of *kara-su* available in the terminal

[8] For the uncertainties besetting this question in respect of the old sites near Domoko and at Dandān-oilik, cf. *Serindia*, i. pp. 208 sq.; for those connected with the abandonment of the Niya Site, see *Anc. Khotan*, i. pp. 383 sqq.; *Serindia*, i. pp. 243 sqq. [For general observations on this point, see now my remarks in *Geogr. J.*, lxv. (1925), pp. 487 sqq.]

Supply of spring water.

river-bed above Imām-Ja'far-Sādiq-mazār is estimated at fully three *tāsh*.[3] Ibrāhīm Bēg, my old travel factotum and an expert in irrigation matters of the Khotan-Keriya region, considered this volume sufficient for cultivation by about a hundred households. The small 'Tārims' in the vicinity of the pilgrimage place are far from comprising even a third of this number, and consequently no difficulty whatever is felt about their irrigation, either in the spring or after June–July, when the flood of *ak-su* stops owing to the demand made upon it by the cultivation of Niya. I heard no complaint whatever of trouble from salt in the water, and any ground that I saw near those cultivated areas, Tülküch-köl included, was completely free from *shōr* or salt efflorescence. I was therefore not surprised to find that the holdings south-east of the Mazār, which I well remembered from my visit of 1906, appeared distinctly larger and their owners' dwellings more substantial.

Lakelet of *Tülküch-köl*.

When starting on the morning of December 13th from Tülküch-köl-tārim northward, I took the opportunity to visit the little lakelet (Pl. 4) to which the locality owes its name and from which the supply of ice for our stay at the ancient site had been obtained overnight. I found it a perfectly clear sheet of water about 80 yards in diameter, fed solely by underground sources and encircled by sand ridges, which to the north and north-east rise about 150 feet above its level. Its situation vividly recalled that of the Yüeh-ya-ch'üan, the famous 'Crescent Lake' close to Tun-huang.[4] Its water keeps perfectly fresh at all times, though its level is subject to considerable seasonal variations. The total absence of any saline deposit on the banks is further proof that this curious terminal lakelet of the Niya river must have a constant subterranean drainage.

Route through terminal jungle belt.

As we moved farther on towards the ancient site I was interested to find the track that our camel convoys of 1906 had trodden in the sand still clearly recognizable, wherever it lay between tamarisk-cones or on otherwise sheltered ground. Of the shepherd huts and jungle grazing grounds which this our old route passed, the first, Daryā-tilgan, was said not to have been visited for the last fifteen years, while two others beyond were known to Ibrāhīm, 'the hunter', an old herdsman of the Mazār flocks, to have been deserted far longer. There was reason to believe that until a few years before the extent of the summer floods upon which depends the growth of reed-beds and scrub in this terminal belt had for some time been shrinking.

First arrival at ruins.

Beyond the last deserted hut, marked *Kötek-satma* in Map No. 19. B. 1 and Pl. 4, 'Azīm, 'the hunter', our guide, turned westwards, and after about a mile, having crossed a high ridge of sand linking tamarisk-cones, we reached the first of the ruined houses reported by him.[5] My surmise on the occasion of my rapid visit to this ground in 1906 that 'more ruins, perhaps, might be hidden in this maze of high tamarisk-covered sand-cones' had proved right.[6] As the photograph, Fig. 99, and the plan, Pl. 5, show, the ruin occupies terrace-like ground on the western edge of an open wind-eroded area extending for about 230 yards from north to south and surrounded by tamarisk-cones. Along the line skirting their foot an ancient fence made of vertical rushes could be traced for a considerable distance. Near where its eastern portion terminates, the gaunt trunks of two big mulberry trees, one still upright, emerged from the sand. Pottery debris of the same type as found elsewhere at the Niya Site strewed the bare eroded ground.

[3] The *tāsh* (stone), the regular unit for measuring the volume of water carried by canals in the oases of Chinese Turkestān, is supposed to represent the quantity needed for working one millstone; it may be taken on the average as corresponding roughly to 5–7 cubic feet per second.

[4] See *Desert Cathay*, ii. pp. 160 sqq.; Fig. 208 below.

[5] The position of these ruins has by an oversight been shown in Map No. 19 too far to the north-west. Camp C. LXII with the entry 'ruined houses' should be shifted to the right bank of the dry river-bed marked to the west of Camp 92 (of 1901), the position being about a mile and a half NW. of the latter. A corresponding correction must be made in the route line; from Camp LXII (N. XLII–XLIII) it led along the ancient river-bed, discussed farther on, down to the position of the ancient bridge as shown in the map.

[6] Cf. *Serindia*, i. p. 213.

Clearing of dwelling N. XLII.

The ruined dwelling N. XLII (Fig. 98) comprised two portions, both badly decayed through erosion. The smaller one to the west was built with wattle of vertically placed tamarisk branches, which were still standing to about two feet in height. On clearing the smaller of the two rooms, i, a number of miscellaneous small objects were recovered, including a carnelian bead, the bowl of a horn spoon, glass fragments, &c. In the other the roofing of reed bundles had fallen in and was found covering part of the floor. From one of the corners a quantity of oat straw was brought to light mixed with sheep-dung, indicating that at one time or another the place had been used as a sheep pen. The larger and more solidly built structure to the east had suffered worse by erosion, and of only two of the outer walls could the timber foundations be traced, together with the lowest portion of the wattle-and-plaster. One well-worked foundation beam measured 23 feet in length with a thickness of 8 inches. Among the plentiful debris of fallen timber, all badly splintered and shrivelled, was a circular post about 8 feet in height, which once supported the roof of a hall as well as the double cantilever inserted between the post and the ceiling. Scanty as were these finds, they left no doubt that the ruin belonged approximately to the same early period as the remains previously explored at the site farther north. This also agreed with the depth of erosion, 14 feet, observed in the immediate proximity of the structure. A row of dead Terek (*Populus alba*) trees close to it still stood upright to a height of 10–12 feet.

Excavation of ruin N. XLIII.

The second ruin, N. XLIII, reported by 'Azīm was found about a furlong to the west, situated among close-set tamarisk-cones and consequently deeply buried in sand (Fig. 94). Its two main rooms (see plan, Pl. 5) were filled with sand to a height of about eight feet, the removal of which was a laborious task and yielded only a few small objects in wood and metal (Pl. XVI), besides pieces of large pottery jars. The construction of the dwelling, though rough, showed two peculiarities of interest. The room to the east, i, provided with a sitting platform running round three sides, as so often in previously explored dwellings of the Niya Site, had wattle walls of a make that I had not observed elsewhere; the elevation in Pl. 5 is intended to illustrate it. It consisted of two thicknesses of matting, closely woven in a diagonal pattern, with a layer of about three inches of mud plaster between them. I found no trace of a plaster facing outside, as is usual in the case of wattle walls with diagonal matting.[7] The other peculiar feature was the recess formed by a wall with re-entering angles in room ii (see plan, Pl. 5). Its purpose remains uncertain; it might possibly have served for the accommodation of stairs leading to an upper story.[8] The posts securing the wattle walls of vertical reeds in this room stood to a height of only 6 feet 6 inches, while the central pillar found in room i indicated for the latter a clear height of over 8 feet. In both rooms the finds consisted only of a few fragments of household objects, as described in the List.

Wind-eroded remains to south.

The reports of the search-parties sent out in different directions on my first arrival at N. XLII indicated the presence of old remains at a few points to the S. and SW. A visit paid to these on December 14th showed that the ruin in the latter direction, about half a mile distant, was only that of a small and poorly built rush-wall structure, probably used as a cattle-shed. Another ruin, found at a distance of about one mile to the south, was that of a dwelling-place, measuring about 62 by 42 feet outside and built with wattle of closely woven diagonal matting like the one in N. XLIII. From the badly splintered condition of the wooden framework disclosed by a trial clearing, it was evident that the remains had been long exposed before being covered by drift-sand, and as this lay now to a height of six feet or so I did not spare time for complete excavation. Two small structures still farther to the south, from which the few relics marked N. XLII. 01–3 had been brought, were reported to be in a similar eroded condition; want of time obliged me to leave these unvisited.

[7] See, e.g. *Ancient Khotan*, i. p. 317; ii. Pl. VI; *Serindia*, i. p. 215, Fig. 47.

[8] Cf. *Ancient Khotan*, i. p. 377; ii. Pl. XXXIV.

The main interest of the ruins so far mentioned lies in the proof they furnish that the area of the ancient settlement collectively named by me the Niya Site extended at least five miles farther south than N. XLI, the southernmost of its buildings previously explored and definitely attributable to the same early epoch.[9] Thus the distance separating the southern extremity of the site from the present termination of the Niya river at Tülküch-köl-tārīm is reduced to only about six miles.

Old river-bed traced to west.

But a still more interesting result of my visit to this ground was the discovery of the upper continuation of that ancient river-bed which in 1906 I had found to be clearly marked by the remains of a bridge close to the west of N. XLI,[10] but which want of time had then not allowed me to trace farther to the south. I first came upon that continuation quite close to the west of N. XLIII. The high tamarisk-cones between which this ruin lies form in fact part of a chain such as often flanks ancient river-beds in the desert. The remains to the south and south-west previously mentioned proved to be situated within a furlong or less of the left bank of this ancient bed. Its width averaged about 40 yards, and the banks on both sides were seen to be lined everywhere by rows of big Toghraks, almost all dead.[11] To the west of it there stretches a belt of fairly open ground, covered with scrub and low drift-sand, up to the foot of a high ridge of dunes running parallel to the terminal bed and about two miles distant from it. The big summer floods of the last two or three years, which, as related above, had caused the diversion of the actual terminal bed from above Tülküch-köl-tārīm, were reported to have taken that direction, and one of the men sent out from my camp at N. XLII had, searching westwards for ruins, actually come upon ground moist from recent inundation.

Ancient river-bed traced to bridge.

The connexion of the bed passing close to N. XLII and N. XLIII with the one first seen in 1906 where the ancient foot bridge west of N. XLI spanned it, was definitely established on December 15th, when I traced it right through to the southern end of the previously explored area. In following the winding course of the ancient bed, clearly marked by rows of dead Toghraks or by a line of low tamarisk-cones, I came at two points upon remains of habitations that had been almost completely eroded, close to which dead poplars (Terek), remnants of ancient arbours, still stood upright in lines.[12]

Deltaic termination of old river-beds.

After about 3 miles' going the ground assumed a more open appearance, resembling that found at the very extremity of the ancient delta of the Keriya river. A number of small channels seemed here to spread over level ground bounded on the west by the big ridge of dunes above mentioned. Numerous flat patches covered with slight salt efflorescence suggested dried-up pools, and Ibrāhīm, 'the hunter', remembered that, three summers before, the terminal inundation of the river had extended to this ground. Here evidently was the meeting-point of the latest western flood channel, the dry deep-cut Yār coming from Daryā-tilgan and the ancient river-bed now traced between the two. Proceeding thence to the north-east we passed through a belt of high tamarisk-covered cones, such as is seen in the photographic panorama reproduced in *Serindia*, Fig. 75, and guided by the ancient bed which meanders between them, struck the 'Tati' area where it stretches in close proximity to N. XLI and the ancient bridge.

Remains near ancient bridge.

My return to this ground was prompted by the wish to examine it more closely than had been possible on October 30th, 1906, the last day of my former stay at the Niya Site.[13] The remains of the ancient bridge were found wholly unchanged, and there was nothing to add to the description previously given of the old river-bed that it once spanned (Fig. 102). But on going over the open

[9] See *Serindia*, i. p. 240; also the site plan, Pl. 7.

[10] See Fig. 102; *Serindia*, i. pp. 240 sq., Fig. 75.

[11] This ancient bed lying to the west of that which our route passed near Daryā-tilgan, and which thence runs due north, has been shown correctly in the Map No. 19. B. But the entry 'Deep Yār' ought to have been placed along the eastern and later channel; see the detailed map of the southern portion of the Niya Site in Pl. 4.

[12] See also *Serindia*, i. 213.

[13] See *Serindia*, i. pp. 240 sq.



97. NORTH-WESTERN PORTION OF RUINED RESIDENCE, N. III, NIYA SITE, BEFORE FINAL EXCAVATION.



98. RUINED DWELLING, N. XLII, NIYA SITE, SEEN FROM NORTH IN COURSE OF CLEARING.



99. SITE OF RUIN N. XLII, NIYA SITE, SEEN FROM SOUTH-WEST BEFORE EXCAVATION.
In foreground row of dead poplars and rush fence.



100. SITE OF RUIN N. IV, NIYA SITE, SEEN FROM SOUTH-EAST.
Erosion terraces with dead tree trunks in foreground.



101. SITE OF RUINED RESIDENCE, N. III, NIYA SITE, SEEN FROM SOUTH-WEST.



102. REMAINS OF FOOTBRIDGE ACROSS ANCIENT RIVER-BED, NIYA SITE.



103. ROOF OF ROOM IN ANCIENT RESIDENCE, N. XXVI, NIYA SITE.
(For Rustam, the man on right, see *Serindia*, i. p. [illegible].)



104. ANCIENT ARBOUR SURROUNDING TANK NEAR RUIN N. XLI, NIYA SITE.
(See *Serindia*, i. p. [illegible].)



105. MEN AT WORK ON NEW BARRAGE ACROSS FLOOD-BED ABOVE TÜLKÜCH TĀRĪM.
(See p. [illegible].)

area west of the bridge and close to its left bank (see plan, Pl. 6) I found that among the remains of dead arbours and garden fences half smothered in the sand there survived also ruins of small structures, N. XLIV. Beyond them and after crossing a well-marked depression adjoining to the north-west, I came to my surprise upon the remains of a large and remarkably well preserved vineyard. The panoramic view, Fig. 131, shows most of this interesting ground as viewed from the south, and its survey, as reproduced in Pl. 6, will help to localize details.

Fenced area.

Fringed by tamarisk-cones rising to 40 feet and more above the original ground level there extends here an oblong open space measuring roughly 260 yards from north-west to south-east and about 150 yards across. A fence of brushwood strengthened by rough posts, such as is often found around the yards and dead arbours of ancient dwellings at the Niya Site, once enclosed the whole area. Its line could be traced all round, except where it lay smothered under the foot of sand-cones, as it was for the greater part along the north-eastern side.

Ancient vineyard.

The northern portion of the fenced space was occupied by a vineyard, edged and here and there interspersed with fruit trees, largely apricot, peach, and Eleagnus (*jigda*). The method of planting the vines could be traced with almost uncanny clearness, and the Niya labourers with me recognized it at once as the method still in vogue everywhere in the oases of the Khotan region. The vines were planted in regular rows, as shown by the plan, Pl. 6, with about twenty feet interval between the rows, and along these, quite close to each vine stem, were fixed stout posts, which once carried the trellis needed for the trailing branches. Where the soil, held together by the posts and vines, had resisted wind-erosion and still rose to about three feet above the present, lowered, level of the ground, as seen in Fig. 132 on the right, each vine stem and post was found almost intact in its place, notwithstanding the lapse of over sixteen centuries. N. XLIV. 01–12 are specimens of wood taken from the vines and fruit trees (apricot, Eleagnus, peach, apple, walnut) found here.

Effects of wind-erosion.

To the east of the surviving portion of this ancient vineyard the ground once probably forming part of it had been eroded to a depth of about 25 feet. Here a gap in the chain of high tamarisk-cones had evidently admitted the powerful winds blowing from the north-east, thus giving them a chance of carrying on with exceptional effect their work of slow but unrelenting destruction, which I had so frequently observed in the Lop Desert and elsewhere. The still larger and somewhat deeper depression that the panorama and plan show between the vineyard and the once fenced arbour and small structures farther south had, as seen from across the dry river-bed on my first rapid visit, presented the appearance of a large rectangular tank or reservoir. Closer survey did not furnish evidence confirming this impression; yet the NW. and SW. sides of the depression, meeting at what is nearly a right angle, looked curiously straight to the eye.

Clearing of ruined structures, N. XLIV.

Immediately to the south-east of it there stretched a long row of dead trees, all cultivated poplars (*Terek*), belonging to an ancient arbour or avenue (Fig. 104). Behind them, splintered posts rising above little terraces covered with sand and tangled dead tamarisk growth marked three or four small ruined structures, N. XLIV. The clearing of them yielded no finds other than a large quantity of oat straw heaped up in a corner of the rush-wall structure iii, which manifestly had served as a cattle-shed. The larger walled enclosure to the south-west of it had probably a similar purpose. The other ruins, i, ii, were those of small habitations built in timber and wattle, the rooms in which were badly eroded.

Clearing of dwelling N. XLV.

On December 16th I moved my camp to the north-west, partly for the purpose of seeing the ground that stretches between the ancient river-bed and the line of ruins previously explored south of the Stūpa of the site, and partly in order to bring my labourers nearer to any ruins not already cleared which a small search party sent out three days earlier with Surveyor Muḥammad Yāqūb

might have traced to the east and north-east of the same line. My move disclosed no fresh ruins; but in the close vicinity of N. xi., near the southern extremity of the site as explored in 1906, a badly eroded dwelling, N. xlv (plan, Pl. 5), built in timber and plaster was found to have escaped attention at that time. The clearing of what remained of two rooms brought to light eighteen Kharoṣṭhī documents on wood, including a double rectangular tablet, a very large wedge-shaped tablet, &c., besides miscellaneous household implements, &c., shown in the List below, among them a sandal-maker's wooden last, N. xlv. i. 03, and a mouse-trap, N. xlv. 01. The thick layer of sheep-dung, which covered the floor of the two rooms and had saved them from being completely eroded, also accounts for the brittle condition of the wooden documents. From the fact that on the route followed the open patches of wind-eroded ground were practically bare of any pottery fragments or other 'Tati' debris, it may be concluded that the ancient settlement did not here extend westwards.

Relics found on eroded ground.

Muhammad Yāqūb's party, which rejoined my camp at N. xxiv, where our discovery of the hidden archive was made in 1906, had failed to trace any previously unexplored ruins in the course of its search eastwards. But as the Surveyor, who was new to the ground and the work, had failed to recognize correctly our former landmarks, the actual course followed by him remained doubtful.[14] Among the small relics, mostly beads, metal fragments and the like, picked up from bare patches of ground by the men with him or by others on the occasion of our renewed visit to the site (N. 01–25), special mention may be made of the small gold ear or nose ring in open filigree work, N. 03 (Pl. XXIV), the well-preserved bronze buckle, N. 06 (Pl. XXIV), and the barbed arrow-head in bronze, N. 021 (Pl. XXIII). The latter agrees closely in type with one of the few previously found at this site.[15]

Ancient cupboard from N. xxvi.

I was able, by returning to this central portion of the site, to recover the large and well-preserved cupboard, N. xxvi. 01 (Pl. XV), which had been unearthed in 1906 from one of the rooms, viii, of the ancient residence N. xxvi (Fig. 103), and which difficulties of transport had then induced me to leave behind under a safe cover of sand.[16] Its constructive features, and in particular the peculiar shape of the legs, make it certain that, like the other cupboards discovered at the Niya Site,[17] it was intended to keep victuals safe from the attack of rodents. The discovery of pieces from the similar but more decoratively treated cupboard, L.B. iii.1,[18] at the Lou-lan Site proves that we have in the Niya Site relic a practically intact specimen of a type of ancient household furniture uniformly in use throughout the Tārīm basin during the early centuries of our era. From N. xxvi I now also removed the decorated wooden jambs, N. xxvi. 010, of the door through which access was gained from the central passage of the house into room v,[19] as well as the pair of roughly carved wooden capitals, N. xxvi. 05–6, found detached and previously left behind.[20]

Remains near N. xxvi.

The dunes near the group of ruined dwellings N. xxiv–vi appeared to have shifted to some extent since my visit in 1906, and though they had left the condition of the ruins that I then explored practically unchanged, they had disclosed a good many more ancient fruit trees lying on the ground. In the same way there had now come to light traces of two more houses close to the east of N. xxvi, which being very badly eroded had before been completely hidden by drift-sand. These were now

[14] I have reason to regret that Miān Afrāz-gul, who subsequently gave ample proofs of his special aptitude and keenness for such archaeological reconnaissance work, was during our visit to the Niya Site incapacitated for it by illness.

[15] See *Serindia*, iv. Pl. XXIX, N. xiv. 008.

[16] Cf. *ibid.*, i. p. 235, Fig. 57.

[17] See *Ancient Khotan*, i. pp. 377, 379; *Serindia*, i. p. 224, Fig. 57; iii. Pl. 11.

[18] See *Serindia*, i. pp. 395, 443; iv. Pl. XLVII.

[19] See *ibid.*, iii. Pl. 15.

[20] Objects similarly recovered are the well-made agricultural fork of wood and the roughly ornamented wooden tray, N. xiii. 01, 02, mentioned in *Serindia*, i. p. 217 and shown there in Fig. 52. Both were among the miscellaneous objects excavated in 1906 from the ruined dwelling N. xiii and left behind at my old camp near N. xxvi after being photographed.

cleared, but the process yielded only the fragments of another wooden cupboard, N. xxvi. 04. a–d, like the one referred to above, and the 'striking plate' of a wooden lock, N. xxvi. 011 (Pl. XVI), described in the List below.

Return to residence N. III.

One of the purposes for which I had returned to the central portion of the site was the execution of a task that had remained over ever since my first visit in 1901. In the large ruined residence N. III (Fig. 101), situated about two miles to the south of the Stûpa, I had then been obliged to leave a few rooms to the west, as well as a large outer hall to the east of the central hall, unexamined. Sand filled them to a great height, and with the comparatively small number of labourers then available their excavation would have entailed a disproportionate sacrifice of time.[21] The number of Kharoṣṭhī documents found in the cleared rooms had been small in comparison with the size and apparent importance of the residence, which at the time had led us to call it the 'Ya-mên'. In the light of my further experience at this site of the amount of 'waste papers' to be reasonably looked for in the houses tenanted by persons of consequence, I had subsequently come to suspect that one of the small rooms left unexcavated immediately to the west of the central hall might possibly have held the 'Daftar' so far missed.

Excavation completed in N. III.

The ample supply of labour at my disposal on this occasion allowed me to finish the clearing of these rooms on December 17th, together with that of the greater part of the outer hall or loggia to the east, and the result confirmed this suspicion. In one of the two rooms to the west, which the revised plan (Pl. 7) of the residence shows marked with x and the north wall of which appears on the extreme left of Fig. 97, as seen before excavation, there were found no less than two dozen Kharoṣṭhī documents on wood, several of the rectangular and wedge-shaped tablets being of good size and almost all in excellent preservation (see Pl. XVII, XVIII). This was a substantial addition to the quantity of ancient local correspondence and records previously secured from the site. Among the miscellaneous objects found here and in the adjoining room xi, mostly of wood and of household use (see List), may be mentioned several mouse-traps, N. III. x. 01, 8, 9 (Pl. XVI, XXVII), and four balusters, N. III. x. 014–17 (Pl. XV), with elaborate ball and ring mouldings closely resembling those found at the Lou-lan Site.[22]

Hall of N. III.

In the large outer hall, N. III. xii, measuring fully 43 feet in width, no finds rewarded the laborious excavation. Of the beams that once carried the roofing only one remained, worked in a single piece of Terek wood but now broken and splintered. N. III. xii. 01 is a specimen of the capitals borne by the four posts that had supported it. The carved wooden baluster or short pillar, N. III. 07 (Pl. XV), is one of those found loose in the sand near the walls of the central hall.[23]

When this task had been satisfactorily completed after nightfall by the light of big bonfires, there remained for the next day only the complete excavation of the ruined dwelling N. XXXIX (see plan, Pl. 5), which had been partially searched in 1906. It brought to light some additional rooms, but no finds of interest. Accordingly, by December 18th I was free to resume my journey eastwards with a good conscience. My renewed visit, rapid as it had to be, had thrown fresh light on the southern extension of the area occupied during the third century A. D. by the settlement of ancient Niya or *Ching-chüeh* 精 絕 and had enabled me to trace farther south what I believe to have shown as the contemporary terminal course of the Niya river. But the conclusions previously arrived at and fully set forth in *Serindia*,[24] regarding the history of the site, the great change in physical conditions that has taken place since its abandonment, and the uncertainty as to the direct cause of this abandonment, remain unaltered.

[21] For a full description of N. III and the interesting finds it had yielded, see *Ancient Khotan*, i. pp. 330 sqq., with Figs. 41–3, and plan, *ibid.* ii. Pl. XXX.

[22] Cf. *Serindia*, i. p. 449; iv. Pl. XXXIII, L.B. v. 008.

[23] See *Ancient Khotan*, i. p. 333; ii. Pl. VIII.

[24] Cf. *Serindia*, i. pp. 242 sqq.

Return to Tülküch-köl.

I returned to Tülküch-köl on December 18th in the same perfectly clear and calm weather, which, combined with temperatures falling as low as 42 degrees F. below freezing-point, had prevailed all through my visit and had allowed the snowy range far away to the south to be sighted daily from the ruins. Proceeding by the track that I had followed on my previous visits, I could now understand why the belt of high tamarisk-cones that extends south of the ancient bridge gives way, after less than two miles, to level ground covered with living forest. While the ancient terminal bed of the river with its rows of dead Toghraks and its banks screened by tamarisk-bound sand ridges trends away to the west, the ground reached by the termination of the deep Yār striking due north of Daryā-tilgan had probably continued to receive moisture, either by floods or underground drainage close to the surface, ever since that ancient terminal bed had ceased to carry water. It is likely enough that what was a mere overflow channel in the early centuries of our era became the terminal bed of the dying river after the ancient settlement had ceased to exist. This would afford an explanation of the striking change in scenery that meets the eye when the traveller passes from the desolation of the dead oasis into the luxuriant forest that extends along the banks of the 'Yār' and approaches its southernmost ruins.

Section V.—LIST OF ANTIQUES FROM NIYA SITE

MISCELLANEOUS OBJECTS FOUND AT NIYA SITE

N. 01–2. Two bronze discs, concave and pierced in centre for iron pin (which remains in 02). Cf. *Ser.* iv. Pl. XXXVI, L.A. 0020. Well preserved. *01.* Diam. 1 5/16", depth 1/4". *02.* Diam. 2 1/4", depth 5/16".

N. 03. Gold (?) ear or nose ring. Orn., roughly star-shaped, composed of a network of open filigree upon which are fine grains; clusters of grains forming points round the edges. Well preserved. 1" × 3/4". Pl. XXIV.

N. 04. a–g. Misc. bronze and glass frs.: (*a*) Bronze 'cat's bell', complete, cast, with ring for suspension; as *Ser.* iv. Pl. XXIX, L.A. 00104–5. 5/8" × 5/8". (*b*) Circular lignite orn.; flat on rev., with small channel cut across; obv. convex, cut in four lobes or fillets, like part of orange, the two outer pierced. 5/8" × 5/8". (*c*) Blue glass bead, six-sided barrel-shape. Length 7/16". (*d*) Blue glass bead, small circular transverse section, a flattened hexagon. Diam. 3/16". (*e*) Black glass bead, of faulty barrel-shape. Length 1/2". (*f*) Yellow glass bead, flattened lenticular. Length 5/16". (*g*) Brown pebble. Gr. M. 9/16".

N. 05. a–f. Misc. frs. of paste and glass beads, &c. (*a*) Fr. of spherical paste bead of coarse *millefiori* type; green, yellow, and red. Diam. 1/2". (*b*) Glass bead, fine blue, translucent; drum-shaped. Diam. 5/16". (*c*) Fr. of fine *millefiori* glass bead, black, white, green, pink, and yellow. 3/8" × 5/16". (*d*) Plain white glass bead, drum-shaped. Diam. 1/4". (*e*) Fr. of lignite bead, spherical. 5/8" × 1/2". (*f*) Small fr. of bronze. 1/4" × 3/16".

N. 06. Bronze buckle with iron tongue and rivet. Loop of attachment for buckle is in form of circular plate, hollowed, and with chamfered edges, having at one side a projecting strip which is doubled backwards to form hinge for buckle and tongue, and clamping piece for attachment to leather or other material. Ring of buckle, circular, flattened at hinge side. Well preserved. 1 3/4" × 1". Pl. XXIV.

N. 07. Fr. of bronze rod, prob. spoon handle. Length 1 13/16", diam. 3/16".

N. 08. Fr. of haematite, showing marks of cutting; one face flat, ground smooth. 13/16" × 5/8" × 3/8".

N. 09. Misc. glass, paste, and shell frs., including ten beads of glass, paste and shell; three frs. of glass beads; three lumps of dark grey paste (not drilled); one small seed, and two small frs. of strip bronze.

Complete beads are of blue, green, yellow, black, and translucent white glass, and one gilded. Shapes: four-sided cylinder with corners levelled, single and double ring-shapes, and grooved cylinders. Gr. M. 1/2".

N. 010. Misc. glass, stone, paste, and bronze frs.; including twenty-five glass, paste, and carnelian beads, three frs. of glass beads, seven irregular balls of dark grey paste, one oblong fr. of bronze drilled in centre, and one fr. of Han coin. Largest beads: two red carnelian, of octagonal cylinder shape, tapering to ends. Length 13/16".

N. 011. Two glass beads; one spherical, yellow glass, translucent, diam. 1/2"; one small grooved-cylinder shape, bright blue, translucent, length 5/16".

N. 012. Half of bronze hinge or buckle, pear-shaped, with pierced design. 1 3/4" × 1". Pl. XXIV.

N. 013. Flattened bronze ring of strip metal. Length 3/4", width of strip 1/4".

N. 014. Seven beads of glass and paste (two with white line ornament) and one carnelian (broken). Gr. M. 5/8".

N. 015–19. Misc. bronze frs. *015.* Thin oblong bronze plate, drilled at one end. 1 1/4" × 5/16". *016.* Eight-petalled

rosette stamped from bronze sheet. Drilled through centre. Diam. $\frac{3}{4}$". *017*. Small bronze ring. Diam. $\frac{1}{2}$", width $\frac{1}{16}$". *018*. Fr. of cast bronze buckle. Edges chamfered on outer side, stopped near corners, which are square. $1\frac{1}{16}$" × $\frac{13}{16}$". *019*. Fr. of thin bronze wire ring. Diam. $\frac{3}{4}$".

N. 021. Bronze arrow-head, with three cutting surfaces arranged round tapering tubular centre. Each blade barbed at lower end. Tubular centre pierced with long triangular slits between the barbs. Well made; well preserved. $1\frac{1}{4}$" × $\frac{3}{4}$". Pl. XXIII.

N. 022. Strip of bronze, doubled upon itself; four holes drilled in the single corners, and two larger holes in each doubled half. 1" × $1\frac{1}{2}$".

N. 023. Small bronze (?) disc, with broken loop for hanging. Completely corroded. Diam. $\frac{3}{4}$".

N. 024. Fr. of metal ornament (?) of very irregular shape; two small cones connected by their broad ends by arched stem from which rise two excrescences. From point of one of the cones extends a wire (broken off). All much corroded; prob. silver. 1" × $\frac{3}{4}$".

N. 025. Fr. of cast-iron cauldron, with one claw-shaped foot, and loop handle placed horizontally and inclined upwards. A band formed by two slightly projecting lines, 1" apart, runs round just below handle. Horizontally the form is circular and approximately 12" in diam. Vertically, globular, rather flattened. Surface oxydized and burnt below. Cf. N. XLI. 01, Pl. XXVII. Span of handle 4". Gr. M. $8\frac{1}{2}$".

N. 027. Rectang. double-tablet; brought by Ibrāhīm to Khotan, opened. Cov.-tablet ($6\frac{1}{4}$" × $3\frac{5}{16}$"): *Obv.* seal cav. ($2\frac{1}{2}$" × $1\frac{1}{2}$"), strings and sealing lost. Traces of 1 l. Khar. across one end. *Rev.* 5 ll. Khar., uppermost almost effaced. Under tablet: *Obv.* 8 ll. Khar., mostly clear. *Rev.* blank. One corner broken off but writing almost intact. 9" × $3\frac{1}{2}$" × $\frac{1}{2}$" to 1". Wood hard and clean. Pl. XVIII.

OBJECTS EXCAVATED AT RUIN N. III

N. III. 01. Square billet of wood, deeply channelled on one side; perhaps a bolt. Rather perished and split. $4\frac{1}{2}$" × $1\frac{1}{2}$" × $1\frac{1}{4}$". Pl. XVI.

N. III. 02. Fr. of wood; orig. prob. square in section; now one side split off, and broken at one end. Two intact edges chamfered. Weathered. $7\frac{1}{2}$" × $2\frac{1}{4}$" × 2".

N. III. 03. Loop handle of large pottery vessel, with potsherd attached. Loop approximately semicircular on curved wall or neck. Red clay, fairly clean and well burnt. Length $6\frac{1}{4}$", breadth $3\frac{1}{4}$". Outer diam. of handle at body 4", projection $2\frac{1}{4}$", breadth $1\frac{3}{8}$", thickness $\frac{5}{8}$". Pl. XXVII.

N. III. 04–5. Two specimens of apple wood; 05 with bark on. Gr. fr. (05), 1' $4\frac{1}{2}$" × $2\frac{1}{4}$".

N. III. 06. Wooden scantling, probably from building. Plain, oblong section; with tenon $2\frac{1}{4}$" long, $2\frac{1}{4}$" deep, and $1\frac{1}{2}$" wide, projecting from one end. One edge roughly levelled. Good condition. 2' $2\frac{1}{4}$" × $7\frac{1}{4}$" × $3\frac{1}{2}$".

N. III. 07. Carved wooden baluster or short pillar, with tenon at each end for fitting into rail or base. One end of shaft globe-shaped, the globe drawing into neck cut in simple round moulding, and expanding again into short circular head cut back flat on top. At other end same shape repeated, but globe elongated. Short plain neck or groove, $\frac{3}{4}$" long, between the two. Roughly cut. Wood hard, but much cracked. H. of whole, with tenons 2' 2", without 1' $8\frac{1}{2}$"; diam. of globes *c.* 7", of necks 4" to 3". Pl. XV.

N. III. x. 1. Rectang. cover-tablet; with very deep seal cav. *Obv.* seal cav. ($1\frac{1}{4}$" × $1\frac{7}{16}$" × 1"), strings and seal lost. Faint traces of 2 Khar. chars. in one corner. *Rev.* blank. Wood hard and well preserved. $6\frac{3}{4}$" × 4" × $\frac{1}{2}$" to $1\frac{1}{2}$".

N. III. x. 2. Wedge cover-tablet; hole through pointed end. *Obv.* $1\frac{1}{4}$" from sq. end, seal cav. ($1\frac{5}{16}$" × $1\frac{3}{16}$"); seal lost but strings preserved in orig. crossings. Between seal and sq. end, 5 or 6 Khar. chars., faint. *Rev.* blank. Wood hard and well preserved. $9\frac{1}{2}$" × $1\frac{13}{16}$" × *c.* $\frac{1}{2}$" to $\frac{5}{16}$".

N. III. x. 3. Rectang. cover-tablet. *Obv.* seal cav. ($1\frac{1}{4}$" × $1\frac{1}{4}$"), strings and seal lost. 2 short ll. Khar. across one end; first chars. chipped off, with edge of tab.; otherwise well preserved. Both ends look as if they had borne earlier writing which has been shaved off. *Rev.* blank. $5\frac{5}{16}$" × 3" × *c.* $\frac{1}{16}$" to $\frac{7}{16}$".

N. III. x. 4. Rectang. under-tablet. *Obv.* 9 ll. Khar., slightly obscured by sand-encrustation. *Rev.* blank. $8\frac{3}{4}$" × $3\frac{7}{8}$" × $\frac{3}{8}$" to $\frac{1}{2}$". Pl. XVII.

N. III. x. 5. Rectang. under-tablet. *Obv.* 8 ll. rather fine small Khar., considerably sand-encrusted, but clear underneath. *Rev.* blank. $7\frac{1}{2}$" × $2\frac{1}{4}$" × $\frac{1}{2}$" to $\frac{1}{4}$". Pl. XVIII.

N. III. x. 6. Rectang. under-tablet. *Obv.* 10 ll. Khar., almost effaced. *Rev.* blank. Wood in good condition. $7\frac{1}{4}$" × $3\frac{7}{16}$" × $\frac{1}{4}$" to $\frac{7}{16}$".

N. III. x. 7. Rectang. cover-tablet; chipped at one end. *Obv.* seal cav. ($1\frac{3}{4}$" × $1\frac{1}{4}$"), strings and seal lost. One l. Khar. across one end, and short line (word) of 2 or 3 chars. below. *Rev.* blank. $6\frac{1}{4}$" × $3\frac{1}{4}$" × $\frac{1}{16}$" to $\frac{7}{16}$".

N. III. x. 8. Rectang. cover-tablet, with deep seal cav. *Obv.* seal cav. ($1\frac{5}{16}$" × 1" × $\frac{1}{2}$"), seal lost, traces of strings preserved in place. Faint traces of 5 (?) ll. Khar. across one end, almost effaced by white discoloration. *Rev.* blank. Wood hard and in good condition. $5\frac{11}{16}$" × $2\frac{7}{8}$" × $\frac{3}{8}$" to $\frac{3}{4}$".

N. III. x. 9. Tablet made of a cleft stick, with bark trimmed off, ends roughly pointed and one end pierced. On flat side, one short l. Khar., faint, near unpierced end. Rounded side, blank. 9" × $1\frac{3}{8}$" × (gr. thickness) $\frac{3}{4}$".

N. III. x. 10. Rectang. under-tablet. *Obv.* 8 ll. Khar., somewhat blotted in places. *Rev.* blank. Probably belonging to N. III. x. 14. 6" × $2\frac{1}{4}$". Pl. XVII.

N. III. x. 11. Wedge under-tablet. *Obv.* 5 ll. Khar., clear. *Rev.* blank, but with cross roughly cut on it. 9 3/4" × (max.) 2 1/4" × 3/16". Pl. XVII.

N. III. x. 12. Wedge cover-tablet; hole through pointed end. *Obv.* 1 1/2" from sq. end, seal cav. (1 5/16" × 1"); strings and seal lost. One l. Khar., clean, running from sq. end to cav. *Rev.* 2 ll. Khar., much sand-encrusted. Wood hard and in good condition. 8 3/4" × (max.) 1 7/8" × 1/8" to 1/4".

N. III. x. 13. Rectang. under-tablet. *Obv.* 7 ll. Khar., good clear. *Rev.* blank. Wood hard and in good condition. 6 3/16" × 2 13/16" × (max.) 7/16".

N. III. x. 14. Rectang. cover-tablet; small. *Obv.* seal cav. (1 3/8" × 1 1/8"), seal and strings lost. On one side of seal cav. 4 ll. Khar. running across tablet; on other side, one l. running across end, and 2 short ll. (or words) below. *Rev.* 8 ll. Khar., good black. Wood hard and well preserved. Prob. belonging to N. III. x. 10. 4 1/2" × 2" × 5/32" to 3/8". Pl. XVII.

N. III. x. 15. Wedge cover-tablet, exceptionally large. Hole through pointed end. *Obv.* 2 1/8" from sq. end, seal cav. (1 3/8" × 1 1/2"); strings and seal lost. Traces of one l. Khar. running from sq. end towards seal cav., but whole tablet encrusted with hard sand, and chars. barely distinguishable. *Rev.* blank. 13 3/8" × 2 1/2" (max.) × 1/4" to 7/8".

N. III. x. 16. Wedge cover-tablet; pierced at pointed end. *Obv.* 1 1/4" from sq. end, seal cav. (1 5/16" × 1 3/8"), seal lost; frs. of string remaining. Khar. char. (?) near hole. Otherwise apparently uninscr., but much sand-encrusted. *Rev.* blank. 9 1/2" × 2" (max.) × 9/16" (max.).

N. III. x. 17. Wedge cover-tablet; hole through pointed end. *Obv.* 1 3/4" from sq. end, seal cav. (1 7/16" × 1 1/4"); strings and seal missing. One short l. Khar., running from sq. end towards cav. *Rev.* 3 ll. Khar., clear. Wood hard and in good condition. 9 1/2" × 2" (max.) × 1/4" to 7/16".

N. III. x. 18. Rectang. cover-tablet. *Obv.* seal cav. (*c.* 1 1/4" sq.), seal lost; fr. of string remaining, wood between string-grooves much broken away. Two ll. Khar., clear, across one end. Chip off one side (modern); otherwise hard and in good condition. *Rev.* blank. 5 3/4" × 3" × 1/16" to 9/16".

N. III. x. 19. Label-like tablet; small oblong, with hole in one corner. *Obv.* two columns containing groups of Khar. chars., or words, 7 in one column, 6 in the other, divided at bottom by short black line. Clear black writing; some sand-encrustation. *Rev.* blank. 3 1/2" × 2" × 3/16". Pl. XVIII.

N. III. x. 20. Takhti-shaped tablet, with lozenge-shaped handle pierced. *Obv.* 4 ll. Khar., much effaced. *Rev.* blank. Wood hard and in good condition. 5 3/4" × 1 1/4" × 3/16".

N. III. x. 21. Wedge cover-tablet; hole through pointed end. *Obv.* 2 1/4" from sq. end, seal cav. (1 1/2" × 1"); strings and seal lost. One l. Khar., partially effaced by sand, running from sq. end to seal cav. *Rev.* 2 ll. Khar., clear, black. 10 1/2" × 1 3/4" × 1/4" to 13/16". Pl. XVIII.

N. III. x. 22. Wedge cover-tablet; hole through pointed end. *Obv.* 1 1/4" from sq. end, seal cav. (1 13/16" × *c.* 1 1/4"); strings and seal lost. One l. Khar., very faint, running from sq. end to seal cav. *Rev.* one short l. Khar., faint, and partially effaced by hard sand. 9 1/4" × 2 1/4" × 1/4" to 5/16".

N. III. x. 23. Label-like tablet, roughly rectang., with hole in one corner. *Obv.* 2 columns Khar., very faint, one containing 7 words (or short ll.), the other 4. *Rev.* blank. Wood hard and in good condition. 3 13/16" × 2 1/4" × 1/4".

N. III. x. 01. Wooden mouse-trap, as N. III. x. 09, Pl. XVI, *q.v.* for full description; but of spear-head shape. 'Gate' lost, but pegs for same remain. See also N. III. x. 08. On under surface, 5" from narrow end, is incised Svastika, with extra limb projecting from inner side of outer angle of each arm. Farther along, a kite shape with long tail. Well preserved. Length 1' 6", gr. width 3 1/2", thickness 3/4". Pl. XXVII.

N. III. x. 02. Fr. of rim of wooden bowl; wood soft and perishing. Orig. diam. *c.* 10", chord 8 3/4", h. 3", thickness 3/8". Pl. XVI.

N. III. x. 03–4. Pair of wooden legs or supports, broader at each end than at the centre; chamfered at sides and cut into segmental section at one end as if to fit round roller or other circular piece. Hard and well preserved. Cf. N. III. xi. 01–2. Length 9 1/2", thickness at waist 2 1/4" × 3 1/4"; at segment end 2 3/4" × 4 3/4", sq. end 2 1/4" × 3 1/2". Pl. XVI.

N. III. x. 05. Fr. of wood, circular capital shape, chamfered below where it joins shaft. Weathered and split. Length 4 1/2" width 3 1/4". Straight band above chamfer 1 1/8" broad. Width of chamfer 1 1/4"; angle of chamfer *c.* 40°. Pl. XVI.

N. III. x. 06. Fr. of leather; thick, 'green', of shape of scapula. Hard, partly scaled. Length of sides 4 3/4", 5 1/4", 6 3/4".

N. III. x. 07. Fr. of wooden implement, perhaps grain-scoop. Handle and portion of concave body only remaining; body and handle at right angles to each other. Small hole drilled to L. of handle. Length of handle 4 1/4", diam. 1 1/4", portion of body 4" × 3", thickness 1 1/4" to 5/16".

N. III. x. 08. Wooden mouse-trap similar to N. III. x. 09, Pl. XVI, but without 'gate'. Pegs for gate still in position. Surface much worn. See also N. III. x. 01. Length 11 3/4", gr. width 3 1/2".

N. III. x. 09. Wooden mouse-trap, as *Anc. Khotan*, ii. Pl. LXXIII, N. xix. 2, and *Ser.* iv. Pl. XIX, N. XIII. iii. 001. Flat wedge-shaped piece of wood, round at narrow end, where a hole is drilled for fastening to ground, and circular aperture 1 3/8" in diam. (for passage of mouse), 1 1/4" from broad end. U-shaped groove, *c.* 1/2" wide and deep, runs down middle of upper face of trap from broad end to within 1" of hole in narrow end.

On either side of this groove, where it appears on side of aperture adjoining long end of trap, is drilled a pair of holes, 1/2" apart centre to centre. Beside the aperture, half-way between the points of issue of groove, on one side, is another small hole; and by it two others, irregularly placed.

On opposite side of hole, and somewhat nearer broad end of trap, is an eighth hole; in which is peg with enlarged head securing a small flat 'gate' of thin wood, which swings across aperture. In free end of gate, on inner side, are two small notches, one perhaps a hole partly broken away. This edge of gate, facing aperture and long end of trap, is worn or gnawed; other edge intact and thin. Method of working not clear; species of guillotine (?). Good condition. For other examples, see N. III. x. 01, Pl. XXVII; 08. Length 1' 3", gr. width 3¼", thickness ⅞". Pl. XVI.

N. III. x. 010. Wooden spatula, broad and roughly cut, with thin stem broken off short. Hole through centre of blade. Length 7¾", gr. width of blade 2$\frac{5}{16}$", diam. of handle ⅜". Pl. XXVII.

N. III. x. 011. Fr. of gourd. Neck complete and drilled on opposite sides for suspension, body broken away. 7¾" × 3¼", diam. of mouth 1⅜".

N. III. x. 012. Fr. of goat's-hair fabric; very coarse; woof pressed closely together and warp almost invisible; as *Ser.* iv. Pl. XLVIII, M. I. xx–xxi. 006. Dark brown and buff, mixed. Dirty. Gr. M. *c.* 1' 4".

N. III. x. 013. Fabric fr.; fine brick-red woollen cloth; loose plain weave. 5¼" × 1¼".

N. III. x. 014–17. Four turned wooden balusters, made of alternate ball and ring mouldings (sixteen to thirteen of latter), with tenon at either end. As *Ser.* iv. Pl. XXXIII, L.B.V. 008, but longer and thinner. 015 broken one end; otherwise good condition. Length without tenons 2' 8½"–2' 9¼", diam. *c.* 3", length of tenons *c.* 2". Pl. XV.

N. III. x. 018. Wooden fr., from piece of furniture (?). Cut in one piece. Below (?), circular disc with bevelled edge; above, oblong block with slightly arched top and rounded ends, standing across middle of disc. Oblong hole, 1¼" × ⅞", cut through middle of block (sideways). Surface comparatively smooth on under-side. Fair condition. H. of whole *c.* 5"; diam. of disc 7¾" to 6", thickness of disc 1⅜"; length of block 6", width 2¼", gr. h. 3". Pl. XV.

N. III. xi. 01–2. Two wooden chair (?) legs. Rectang. in section in upper third, with rounded angles below, and foot curved slightly outward. Thick tenon at upper end. Split and dry. Cf. N. III. x. 03–4, Pl. XVI. Length 12½", thickness at waist 1⅝" × 2".

N. III. xi. 03. Wooden tablet (?); uninscr. Wedge-shaped, roughly like wedge under-tablet; but tapering end cut to sharp point, and sq.-notch (as for string) cut into each side 2¼" from this point. Long sides rudely bevelled. Into thickness of broad end, again, a deep groove is cut, running the whole width of tablet. No trace of writing. Wood hard and clean. 9$\frac{5}{16}$" × (max.) 1⅝" × *c.* ⅝".

N. III. xii. 01. Rectang. wooden capital for pillar. Block, roughly sq., bevelled at half height to form truncated pyramid. In the smaller rectangular face is circular socket, roughly hollowed for shaft or tenon. Face below has surface sunk ⅝" to receive lintel or rail, reserving raised portions 1" wide on two opposite edges. Roughly cut; wood much weathered and split. Cf. similar object in miniature, Ast. iii. 4. 024 and K.K.I. i. 05. H. of whole *c.* 4½", diam. of socket 3", depth 2½".

OBJECTS FOUND ON ERODED GROUND BETWEEN RUINS N. III AND N. XXIV

N. XXIV–III. 01. Bronze disc with domed centre (like a cymbal) and broken shank on rev. Corroded in patches. Diam. ⅞".

N. XXIV–III. 02. Beads; three glass, green and blue; one carnelian and one shell. Gr. M. ⅜".

N. XXIV–III. 03. Brown pebble. ⅞" × ⅜" × ⅜".

OBJECTS RECOVERED FROM RUINED DWELLING N. XIII

N. XIII. 01. Wooden agricultural fork or 'prong', with four prongs cut wedge shape at half end, where they are brought together and riveted through with wooden pin. Outer ends spread by reason of wedge shape at haft, and the spread is further increased by selection of curved pieces for outside. The two centre prongs have notches on their outer surfaces near base, and have evidently been tied together independently of the binding that must have been round all four. Well made of natural branches sharpened and shaped where needed. Very hard. Length 18¼", spread of prongs 10", haft end tapers to 2". See *Ser.* i. p. 217, Figs. 47, 52.

N. XIII. 02. Fr. of wooden tray, roughly made with slightly raised border on three sides ornamented with irregular lozenge pattern formed by simple knife incisions in two directions. An old break right across panel has been mended by insertion of two loose tenons; pegged through with dowels. A square hole is cut through near each of two corners where borders meet. At opposite long edge are mortises; remains of tenon in one, similar to those of the repaired break, show that another piece joined on here. See *Ser.* i. p. 217, Figs. 47, 52. Rev. roughly levelled with adze, and end edges chamfered. 24¾" × 11". Warped and split. Pl. XV.

OBJECTS EXCAVATED IN RUINS N. XXVI

N. XXVI. 01. Four-legged wooden cupboard, as *Ser.* iv. Pl. XLVII, L.B. III. 1, but with no decorative relief carving. Sides, bottom, and top (each of two plain panels), are complete, though the wooden dowels have fallen out which held the two last to frame. Front panels show door aperture, 8" by 10", 7" from right side and 5" from top. Irregular hole charred through top, which was roughly smoothed and painted black (?).

Legs have lower part carved in form of animal leg; as L.B. III. 1, but shorter; above is oblong brick-like member, and above again a flat disc-like member set on edge, coming immediately below mortised upper half of leg which holds ends of chest proper.

Round upper edge ran relief band of cable pattern cut on separate strips of wood and attached by wooden dowels. Fair condition; wood hard. H. 3′ 2″, depth of chest 1′ 6″, capacity of cupboard 3′ 5½″ × 2′ 1″. Pl. XV.

N. xxvi. 04. a–d. Four frs. of wooden cupboard, as N. xxvi. 01 but smaller; *a* and *b* a pair of legs, *c* and *d* (joining) boards of bottom or top. Legs exactly as in *Ser.* iv. Pl. XLVII, L.B. III. 1, except that one sunk groove takes place of three at top of beast-leg, and foot is placed on small base of plinth. Boards rabbeted, plain. Good condition. Legs, H. 2′ 7″, width 3¼″, thickness 1¾″; boards (joined) 2′ 3¾″ × 1′ 2″.

N. xxvi. 05–6. Pair of wooden capitals (?). Each cut in one piece, in form roughly of cylinder, bevelled inwards from ends for distance of about 2″, to narrower neck, and swelling again to form quasi-globular middle section. Tenon in middle of each end of each; one in each case cut off sq., the other roughly pointed. Somewhat rudely cut; good condition but 05 cracked; remains of black paint on 06. Length with tenons *c.* 1′ 1″, without 9¾″; diam. of ends and middle 7″, of necks 4″, of tenons 2¼″.

N. xxvi. 07–9. Three specimens of wood, roughly trimmed; wood hard and split. Gr. fr. (09) 1′ 10″ × 3″ × 2¼″.

N. xxvi. 010. a and b. Frs. of carved wooden uprights from architrave from doorway; (*a*) is from the L. and (*b*) from R. Both carved on face only, with same patterns. Down centre a band of imbricated laurel leaves (cf. Strzygowski, *Kopt. Kunst*, Cairo Museum, p. 85, No. 7368) *c.* 1¾″ wide, between plain fillets, ⅜″ wide.

Towards inner edge, a band of long flat billets ⅞″ wide; each billet 1⅜″ long, the intervals between billets, *c.* ⅝″, cut into transverse prism, ridge outwards, by sloping cut above and below from ridge. Towards inner edge of architrave, plain surface, *c.* ⅝″ wide, on slightly lower plane than billets. This edge is worn round in places, and chipped and irregular from wear. Outer edge has plain fillet *c.* ⅜″ wide.

Outer return surface of (*a*) is roughly channelled to a depth of ⅝″ and width 1½″, as though to fit against a round post. In (*b*) the corresponding surface is flat. Inner return surfaces adjoining jambs, and back surfaces, plain in both.

Each has a rectangular tenon cut on the lower end for jointing to sill. Tenon is flush with inner surface on one side, is cut back from face about ⅞″ and measures ⅞″ in thickness, 2″ (*a*) and 2⅜″ (*b*) in breadth, and 1″ to 1½″ projection. Upper end of (*a*) broken and cut away. That of (*b*) sawn off for convenience of transport. Split, weather-worn, and perished on surface.

Carving rough but effective. Laurel leaves produced by series of diagonal cuts in opposite directions forming lozenge shapes, and the upper half of each lozenge cut back as in 'chip' carving. (*a*) Length 3′ 1½″, breadth *c.* 5″, thickness 3″. (*b*) Length 3′ 2¾″, breadth 5″, thickness 2½″.

N. xxvi. 011. Wooden socket, or 'striking plate' for wooden lock. Consists of one piece of wood 7″ long, of which 2⅞″ is a tenon for fixing in door frame and has dowel hole. Outer end, 4½″ × 4″ × 2⅞″, has all outer corners rounded off, and is pierced through laterally by bolt-hole, 1⅝″ × 1½″. From above downwards is a small hole, perhaps for extra pin to keep bolt in position when shot. See *Ser.* i. pp. 191 sq., Kha. v. 006, for type of lock, with drawing. Pl. XVI.

OBJECTS FOUND NEAR RUIN N. XLI

N. xli. 01. Fr. of cast-iron cauldron, similar to N. 025 but probably smaller. Handle and portion of side only. Much oxydized. 5⅞″ × 3¾″, span of handle 4″. Pl. XXVII.

N. xli. 02. Bronze finger-ring, thin. Plain, flat bezel, roughly lozenge-shaped. Hook roughly chased on each side of bezel; broken at thin part opposite bezel, where was original joint. Diam. ⅞″.

N. xli. 03. Bronze ring, strong, of even breadth and thickness; cast. Surface reeded. Diam. 1⅛″, breadth $\frac{3}{16}$″.

OBJECTS EXCAVATED IN RUINS N. XLII–XLIII

N. xlii. 01. Turned wooden bowl, with flat shallow foot. Much split and weathered. Diam. 4″, h. 2⅞″, thickness ¼″. Pl. XVI.

N. xlii. 02. Terra-cotta spinning-whorl, cut from potsherd. Flat disc, pierced. One side coated with dull buff slip. Diam. 1¾″ × $\frac{5}{16}$″.

N. xlii. 03. Fr. of woollen fabric, in faded crimson, oversewn at one edge. Open texture, plain weave. 6″ × 3½″.

N. xlii. 04. Fr. of wood, prob. half of disc originally circular; hacked with knife along broken edge. 4⅞″ × 2″ × $\frac{7}{16}$″.

N. xlii. 05. Irregular block of mulberry wood, partly cut and partly broken. Hard. 3½″ × 1⅞″ × 1¼″.

N. xlii. i. 01. Carnelian bead; spherical, poor quality. Diam. $\frac{7}{16}$″.

N. xlii. i. 02. Bowl of horn spoon; with continuation for attachment to handle, shaved to wedge shape for splicing, and drilled with two holes for pegs (dowels). Bowl 2½″ × 1¼″, length of tang 2″. Pl. XVI.

N. xlii. i. 03. Wooden cleat, small, freshly cut; as *Ser.* iv. Pl. XXVIII, N. xiv. iii. 0017. Prob. used in loom. 2″ × $\frac{5}{16}$″.

N. XLII. i. 04. Lump of oxidized iron, irregular, or slag. 3" × 1½".

N. XLII. i. 05. Two peach stones, complete, and two half shells. Average length 1$\frac{3}{16}$".

N. XLII. i. 06. Fr. of glass, opaque black, drop-shaped. Point broken. ⅝" × ½".

N. XLII. i. 07. Fr. of slag, hard, black. ⅞" × ⅝".

N. XLII. i. 08. Fr. of shoulder of pottery vessel; red clay moderately well prepared; orn. with pattern of annular and zigzag bands scratched in surface and studded with incised rings. 3½" × 3" × ¼". Pl. XXV.

N. XLII. i. 09. Fr. of neck of pottery vessel, with root of handle. Overhanging rim. Black clay mixed with evenly ground quartz, which gives a rather pleasing quality. 2½" × 3⅛" × ¼".

N. XLII. i. 010–11. Two wooden discs, drilled through centre. *010*, with rounded edges; diam. 1$\frac{11}{16}$", thickness ½". *011*, sharp edges. Bung-shaped; diam. 1⅛", thickness ¾".

N. XLII. i. 012. Crutch-shaped wooden object, as *Ser.*, iv, Pl. XXVIII, N. XIII. i. 002. Tapers downwards to lower end, near which a portion is thinned to form necking. 4½" × 1¼".

N. XLII. i. 013. Iron rod, sq. in section, flattened in centre, and pierced with two sq. holes in flattened part. Rusted. Length of whole 6¾", sq. section $\frac{5}{16}$"; flattened part, length *c.* 2", width ½", thickness ¼".

N. XLII. i. 014. Fabric frs., including frs. of coarse red woollen canvas; piece of buff felt; piece of vegetable fibre rope; and small hank of thin buff woollen thread. Gr. M. (fabric) 12½".

N. XLII. ii. 01. Specimen of oat straw.

N. XLIII. 01. Wooden spoon; leaf-shaped bowl with portion of handle. Bowl concave, and set at wide angle with handle. Much perished and brittle. Bowl 2½" × 1¼", length over all 5". Pl. XVI.

N. XLIII. 02. Crutch-shaped wooden object, as N. XLII. i. 012, and *Ser.* iv. Pl. XXVIII, N. XIII. i. 002. Shaft round, slightly tapered at end. Head rounded laterally on under-side; flat laterally and slightly curved longitudinally on upper side, with small notch, as for a thread, at centre of each long edge. Dry and brittle. Length of whole 4½", of cross piece 2¾", width of cross piece in centre ⅞", diam. of shaft ½". Pl. XVI.

N. XLIII. 03. Fr. of two-handled terra-cotta vessel, of *stamnos* type. Mouth wide with simple flat tip; handles placed vertically; band of irregular incised zigzag round neck and shoulder. One handle broken; all lower part of vessel missing. Clay ordinary red, moderately clean. Rather brittle. Gr. H. of fr. 6", width of mouth 4¼". Prob. width of vessel 8½". Pl. XXV.

N. XLIII. 04. Lump of iron, burnt and oxydized; prob. waste from crucible. Gr. M. 5¼".

N. XLIII. 05. Wooden clamp, composed of spindle and one cheek (together shaped like a mushroom), cut in one piece. The spindle or stem is drilled through with two holes running at right angles to each other, one passing below the other. Two pins are passed through these to keep the second cheek, which is a separate piece (broken), in position. Second cheek has groove cut across upper surface to receive lower of two pins. Very roughly made. Length 5¼", diam. of cheek *c.* 4". Pl. XVI.

OBJECTS FOUND AT RUINS N. XLIV

N. XLIV. 01. Specimen of Eleagnus (Jigda) wood. 1' 6" × 1".

N. XLIV. 02. Specimen of peach wood. 1' 5½" × 1¼".

N. XLIV. 03–6. Fr. of vine stem, gnarled and curled into roughly circular form, and three smaller frs.; bleached and split. Gr. fr. 2' 3".

N. XLIV. 07. Fr. of vine stem, gnarled and weathered, and four small frs. Gr. fr. 1' 7".

N. XLIV. 08. Specimen of apricot wood. 2' 4" × 3".

N. XLIV. 09. Specimen of peach wood. 2' 4" × 2¼".

N. XLIV. 010. Specimen of apple wood. 2' 4" × 2¼".

N. XLIV. 011. Specimen of walnut wood. 1' 6" × 1½".

N. XLIV. 012. Specimen of Eleagnus wood. 2' 6" × 3½".

N. XLIV. 013. Specimen of apple wood. 1' 4" × 1½".

N. XLIV. ii. 01. Specimen of Oats.

OBJECTS EXCAVATED IN RUIN N. XLV

N. XLV. 01. Wooden mouse-trap, as N. III. x. 09, Pl. XVI, *q. v.* for full descr. Tapering end unusually blunt. Near that end on under-side is scratched a five-pointed star ☆. Groove on obv. stops 2½" from end, and has a broadened termination. Broken at large hole, and 'gate' lost. Length 1' 1¾"; breadth 2¼", thickness ¾".

N. XLV. 02. Mouth and shoulders of pottery vase, of amphora type. Neck rather long, with mouth rising about 1½" above handles, which are simple loops slightly elongated upwards and of hexagonal section. Where they join shoulders rises a small conical projection, as of a recurved end half buried in the body. Mouth slightly trumpet-shaped. Red clay of poor quality and badly washed. Brittle. Breadth across root of handles 12¾", diam. of mouth 6", h. of fr. 6¼", average thickness $\frac{5}{16}$". Pl. XXV.

N. XLV. 03. Rectang. double-tablet; small under-tablet. Broken (now mended) cover-tablet: *Obv.* seal cav. (1$\frac{3}{16}$" × 1$\frac{3}{16}$"), strings and seal lost. On each side of seal cav. one l. Khar., partially worn off, running across end. *Rev.* blank. Under-tablet: *Obv.* 6 ll. Khar., uppermost partly broken off, mostly clear black. *Rev.* blank. Wood soft; both tablets worn and chipped. 5¼" × 2" × (max.) ¾". Pl. XVIII.

N. xlv. i. 01. Concavo-convex wooden disc, pierced with two holes on middle line, 2" apart. Through these is threaded a coarse fibre cord, held firmly by means of wooden pegs drawn into the holes. Loose ends of cord are cut off short on concave side. Prob. one of a pair of such discs, of which the other is N. xlv. i. 02. Diam. 6", thickness ½". Pl. XVI.

N. xlv. i. 02. Wooden disc similar to N. xlv. i. 01, but without cord. Mouse-eaten at edge. Diam. 5¼", thickness ¼".

N. xlv. i. 03. Sandal-maker's wooden last. Flat piece like boot sole, but bi-symmetrical, suited to either foot. Well preserved. 10½" × 3¼" × ½".

N. xlv. i. 04. Butt of wooden arrow-shaft with notch; cut at lower end as though to splice. Remains of black paint round notch. Well preserved. 5¾" × $\frac{5}{16}$" at notch. Pl. XVI.

N. xlv. i. 05. Wooden cleat, as N. xlii. i. 03, &c. Well preserved. 2¾" × ¾" × $\frac{5}{16}$"; narrow part ⅝" × ¼" (depth of notch). Pl. XVI.

N. xlv. i. 06. Wooden fr., segmental in shape, flat on both sides, with dowel driven through from centre of curved edge to straight edge. Cut to narrow nose at each end; use doubtful. Well preserved. 4⅞" × 1½" × $\frac{13}{16}$".

N. xlv. i. 07. Wooden disc, roughly circular, with deep groove round edge like pulley wheel. Prob. part of loom fitting. Well preserved. Diam. 1⅜", thickness ⅝".

N. xlv. i. 08. Blunt triangular wooden fr., with two sides slightly curved, and the third with deep notch. Apex cut off square; use uncertain. Well preserved. 1⅝" × 1⅜" to ⅞" × $\frac{7}{16}$".

N. xlv. i. 09. Fr. of horn, cone-shaped. Bottom trimmed round edge, and shallow hole drilled in centre; knife-marks all over. Well preserved. H. 1½", diam. of base $\frac{13}{16}$".

N. xlv. i. 010. Fr. of coarse woollen fabric, apparently woven in stripes, dark brown, buff and red. Warp of thick cord widely spaced. Gr. M. (border) 8½".

N. xlv. i. 011. Wedge cover-tablet; hole through pointed end. *Obv.* 2" from sq. end, seal cav. ($1\frac{5}{16}$" × *c.* 1½). Sq. end charred and discoloured, no writing visible. *Rev.* also discoloured at sq. end (but traces of ink chars. farther along ?). 10" × $1\frac{13}{16}$" × (max.) ⅜".

N. xlv. i. 012. Wedge cover-tablet, of exceptional size. Hole through pointed end. *Obv.* 2⅝" from sq. end, seal cav. ($1\frac{9}{16}$" × 1"); strings and seal lost. One l. Khar., running from sq. end to seal cav., and continuing again on other side of seal cav. *Rev.* 3 ll. Khar., rather faint. Wood hard. 16⅝" × $2\frac{5}{16}$" (max.) × 1".

N. xlv. i. 013. Wedge cover-tablet. *Obv.* 1⅝" from sq. end, seal cav. (1⅝" × ⅞"); strings and seal lost. One l. Khar., running from sq. end to seal cav. *Rev.* 4 ll. Khar., clear black. Hole through pierced end. 8⅝" × 1⅝" × (max.) ½". Pl. XVIII.

N. xlv. i. 014. Wedge cover-tablet; hole through pointed end. *Obv.* 1¼" from sq. end, seal cav. ($1\frac{7}{16}$" sq.) retaining end of string in grooves, and part of clay sealing, but whole of central part with impression lost. Apparently no writing between sq. end and seal cav. *Rev.* one l. Khar., faint. Wood hard. 9" × 1⅞" (max.) $\frac{7}{16}$".

N. xlv. i. 015. Wedge cover-tablet, broken in fragments. Wood decayed and very brittle. Hole through pointed end. *Obv.* 1½" from sq. end, seal cav. (1¼" sq.) retaining clay sealing, but broken across through middle and whole of impression lost. Pink discoloration about this end; no writing visible. *Rev.* also discoloured strong pink towards wider end. Traces of 3 ll. Khar., almost effaced, on middle fr. 9" × 1⅞" × (max.) $\frac{7}{16}$".

N. xlv. i. 016. Wedge cover-tablet; broken in three; wood decayed and surface gone. *Obv.* 1⅞" from sq. end, seal cav. (1⅜" × 1"); strings and seal lost. No writing visible. *Rev.* traces of one l. Khar.; much discoloration. 9⅝" × 1¾" × (max.) ⅜".

N. xlv. i. 017. Frs. of small rectang. cover-tablet, main piece showing remains of seal cav. (empty). One l. Khar. on rev. Wood soft and surface gone. Gr. fr. 2⅜" × (width complete) 1⅞".

N. xlv. i. 018. Frs. of wedge cover-tablet; both ends (including seal cav.) lost. *Obv.* no writing visible. *Rev.* parts of 3 to 5 ll. Khar., considerably effaced. Wood soft. (Length joined) 7¼" × 2" to 1⅝" × ½".

N. xlv. i. 019. Remains of wedge cover-tablet; broken in three, pointed end lost. Much decayed and sand-encrusted. *Obv.* 1¼" from sq. end, seal cav. (1¼" sq.), with remains of clay, but none of impression. No writing visible. *Rev.* 2 ll. Khar., faint. Deep pink discoloration both obv. and rev. (Length joined) 5¾" × 1⅝" × (max.) ⅝".

N. xlv. i. 020. Remains of wedge cover-tablet; sq. end with seal cav. complete but broken; pointed end lost. *Obv.* 1½" from sq. end, seal cav. (1" × 1½"); seal lost. No writing visible. *Rev.* blank. Wood soft. (Length joined) 6" × $1\frac{13}{16}$" × (max.) $\frac{5}{16}$".

N. xlv. i. 021. Fr. of wedge cover-tablet; pointed end (with hole). *Obv.* apparently blank. *Rev.* trace of Khar. char. by broken edge (?). Wood soft and surface somewhat gone. Hole through end. 5½" × 1⅝" × (max.) ½".

N. xlv. i. 022. Fr. of wedge cover-tablet; both ends (including seal cav.) lost. *Obv.* traces of Khar. chars. near wider end. *Rev.* 3 ll. Khar., clear black, but somewhat worm-eaten. 6" × 1½" (max.) × $\frac{5}{16}$".

N. xlv. i. 023. Wedge under-tablet; broken in six pieces, and pointed end incomplete. *Obv.* 4 ll. Khar., somewhat effaced. *Rev.* blank. 7⅞" (joined) × (max.) 2¼" × $\frac{5}{16}$".

N. xlv. i. 024. Fr. of wedge under-tablet (broken in two). Wood soft and surface gone. *Obv.* traces of 4 ll. Khar., almost effaced. *Rev.* blank. 4" × 1½" × ½".

N. xlv. i. 025. Remains of wedge cover-tablet (?); several frs. now joined. *Obv.* blank. *Rev.* 3 ll. Khar., fairly clear. 3" × $1\frac{5}{16}$" × ½".

N. xlv. i. 026–8. Pointed ends of three wedge cover-tablets; pierced. Wood soft, and surface somewhat gone in all. *Obv.* blank in all. *Rev.* 026, 4 ll. Khar., faint; pink discoloration. 027, blank. 028, a few chars. Khar.; pink discoloration. Gr. M. 2 5/16″.

N. xlv. i. 029. Small sq. tablet, broken in pieces. No hole. Traces of 4 ll. Khar., one side, almost effaced. 2″ × 2 1/4″.

N. xlv. i. 030–1. Label-like tablet; one corner and part of one side broken off. No hole in part remaining. Wood soft, much encrusted and discoloured. Traces of one l. Khar. one side. Broken. 5 3/4″ × 1 5/16″ × 3/16″.

N. xlv. i. 032. Fr. of tablet, perhaps belonging to N. xlv. i. 029. Traces of 5 ll. Khar., one side, very faint. 2 1/4″ × 1 7/16″ × 1/8″.

N. xlv. i. 033–5. Fr. of wedge under-tablet: broken in pieces. Wood soft and surface gone. *Obv.* traces of 5 (?) ll. Khar., almost effaced. *Rev.* blank. 3 7/8″ × 1 11/16″ × 1/8″.

N. xlv. i. 036. Rectang. cover-tablet: edges chipped; otherwise fair condition. *Obv.* seal cav. (1 3/4″ × 1 1/2″), with string and some part of clay sealing preserved, but impression lost. One l. Khar., across one end. *Rev.* blank. 6 7/8″ × 3 3/4″ × (max.) 5/16″.

N. xlv. i. 037. Wedge under-tablet: small hole through pointed end. *Obv.* 3 ll. Khar., almost effaced, and pink discoloration. *Rev.* blank. Broken in two. 9 3/16″ × 1 3/16″ × c. 1/4″.

N. xlv. i. 038. Wedge under-tablet: broken (now joined); wood badly cracked and discoloured. Hole through pointed end. *Obv.* 3 ll. Khar., rather faint. Some pink discoloration. *Rev.* remains of string sticking to surface. 9 1/2″ × 1 1/8″ × 3/16″.

CHAPTER V

ON THE WAY TO LOP-NŌR

Section I.—CHARCHAN AND VĀSH-SHAHRI

March to Yār-tungaz river.

My aim, when on the 19th December I left the extremity of the Niya river, was to gain as quickly as possible the Lop Desert region, my main goal for the winter's operations and still far away to the north-east. For the first two marches I had to follow my old track of 1901 and 1906 to the Yār-tungaz river; to my surprise I noticed that where it crossed high ridges formed by dunes of coarse sand it still showed in places distinct traces of the footprints left behind by my camels. This observation was subsequently confirmed when I revisited the Limes west of Tun-huang.

Crossing to Endere river.

From our old camp at Helya-bēg (Map No. 19. c. 1) I crossed the Yār-tungaz river, already hard frozen, and in order to shorten the journey to the Endere river struck eastwards across unexplored desert ground. The belts of dunes that I met on the first march beyond the Yār-tungaz river proved unexpectedly low, none rising to more than about 50 feet in height. Yet they, too, all stretched in the north–south direction of the river, thus conforming to what I had observed elsewhere in the Taklamakān and Lop deserts, viz. that the big sand ridges or 'Dawāns' always have their axis parallel to the main bearing of the nearest river-bed, whether still carrying water or dry.[1] Here I noticed that the same rule holds good also as regards the thin lines of tamarisk-cones on our route.

Old branch from Endere river.

On the march beyond Camp LXVIII the sandy soil with scanty scrub soon gave way to wide stretches of bare clay covered with a hard salt crust, which forced us to steer a more southerly course for the sake of the camels' feet. Patches with tamarisk bushes growing on flat ground showed that the area had been subject at one time to occasional inundation. That this must have come from the Endere river became clear when towards the end of the second march we encountered a wide *shōr*-covered depression flanked by lines of high tamarisk-cones running from SE. to NW. Beyond it we came upon rows of Toghraks, and there we camped. But some twelve miles had next morning still to be covered from Camp LXIX before we reached the Endere river; as we did after striking the caravan track towards Charchan. The wide divergence of that dry western bed from the deep-cut Endere river is of interest as illustrating the great lateral deflexion to which the drainage descending over the piedmont gravel glacis of the K'un-lun, here particularly broad, may be subject at one period or another.

Course of Endere river.

The observation is of interest as it helps to account for the distances that separate the main ruins of the Endere Site and the remains of Bilēl-konghan, explored on my first and second journeys,[2] from the present course of the Endere river. This, where the caravan track crosses it at Endere-langar, runs in a broad 'Yār' cut into the loess to a depth of over a hundred feet. Its course here, still almost clear of ice, had a width of about 30 yards; and carried a volume of water which could not be less than 100 cubic feet per second. A still greater abundance of water during the summer

[1] Cf. *Serindia*, i. p. 241 note 2, 451 sq.; iii. p. 1239.

[2] See *Anc. Khotan*, i. pp. 421 sqq.; *Serindia*, i. pp. 271 sqq., 275 sqq.

months was attested by a regular flood bed, about 300 feet across and well marked to a height of 3½ feet above the surface of the actual flow.

Terminal oasis of Endere.

This latter observation fully confirmed the statement recorded on my second journey that the difficulty experienced in maintaining the present small terminal oasis of Endere is due mainly to the frequent changes in the river's course lower down, consequent on the heavy summer floods.[3] I found no salinity in the *kara-su* water that filled the winter channel and no *shōr* on its banks. Taking all these facts into consideration I see no reason to modify the views previously expressed as to the conditions that in ancient times determined cultivation near the end of the Endere river, conditions which have also affected the successive later attempts at resumed occupation after prolonged abandonment.[4]

Search for ruins beyond Endere.

It is these repeated changes, to which its occupation has in historical times been subject, that lend a special interest to ancient remains in this district. I had therefore already, before my arrival at Kāshgar, arranged through Badruddīn Khān for a renewed search to be made by certain of my old Niya diggers for previously unexplored ruins. The report received from one of them while I was at Khotan had not sounded encouraging; for they had found only some rough timber and reed huts such as shepherds still build to-day, in the forest belt at some distance above Bāba-koidi on the Charchan road (Map No. 19. D. 1) and evidently not far from an old bed of the Endere river, and another little group of rough structures in the jungle of Shūdan (Map No. 23. A. 1). They also had heard from a Niya shepherd of a site with more substantial ruins including a 'P'ao-t'ai', which he called *Kök-tim* ('the green tower') and which he said he had come upon by chance some 'five marches' south of Shūdan. On being sent back to look for this 'Kök-tim' the party had not been able to secure Aḥmad, the pretended guide, and in consequence all but one of them failed to meet me at Endere-langar, as arranged. The two 'old houses' which that man was prepared to indicate to the north-west of Kamaghaz were manifestly identical with the small ruins already visited in 1906 near the ancient watch station at the southern end of the site,[5] and when subsequently asked to accompany us to Shūdan he, too, decamped.

Route from Endere to Charchan.

In view of the negative result of these inquiries and those made here in 1905 by Professor Huntington, I consider it very improbable that there exist any remains of ancient settlements, other than mere shepherds' huts and the like, in the desert separating the riverine belts of Endere and Charchan. I had already followed the caravan route passing through it in 1906,[6] and no further account of the ground or of early travellers' references to it is needed. I found, however, signs of increasing traffic and of some improvement of travel conditions in the shape of newly built 'Langars' at the wells where we halted. Exceptionally clear atmospheric conditions allowed me on the last two marches before Charchan to sight the great snow-covered range of the K'un-lun, and thus to fix exactly our positions on the plane table from high peaks triangulated in 1906.

Expansion of Charchan oasis.

In the report on my second journey I have fully discussed the physical aspects of the Charchan oasis and its importance as a link on the southern trade route of the Tārīm Basin. I have also reviewed there the scanty remains of its early occupation, and the historical records bearing on the *peripeteias* through which it has passed since Han times.[7] My renewed brief stay at Charchan, necessary for the purpose of securing fresh camels and supplies, furnished distinct evidence of an increase of cultivation and prosperity since my first visit. The western limit of the oasis now approached close to the small ruin known as *Tam*, and its southern limit had encroached still

[3] Cf. *Serindia*, i. pp. 274 sq.

[4] See in particular *Serindia*, i. pp. 286 sqq., concerning reoccupation of Endere Fort in T'ang times and the ruins of the earlier settlement that Hsüan-tsang noted here in the 'old Tu-huo-lo country'.

[5] See *Serindia*, i. pp. 284 sq.

[6] See *ibid.*, i. pp. 293 sq.

[7] Cf. *ibid.*, i. pp. 294 sqq.

further upon the large ' Tati ' area known as ' Kōne-shahr ', which marks the site of an earlier settlement (Map No. 22. c, d. 4).[8] That this was occupied also during part of the Muhammadan period was made probable by a Sung copper coin with the Nien-hao *Chih-ho* (A. D. 1054–6), which I purchased, and a Muhammadan silver coin shown to me at Charchan, both declared to have been found on the wind-eroded ' Tati ' near Yalghuz-dong-mazār.[9]

Irrigation resources of Charchan.

In the north and north-west also the cultivated area had been appreciably extended. Moreover the endeavour to utilize the old canal, marked on the map as *Yangi-üstang*, for a new colony to the west and north-west of the present oasis had been successfully resumed. Water in the reopened canal had been brought to the point where the caravan route crosses it, and a couple of miles to the north I observed ground cleared, and homesteads built, in anticipation by prospective settlers. I have already remarked upon the abundant water-supply assured to the oasis by the Charchan river and upon the possibility of greatly extended irrigation, if only means are found of overcoming the difficulties in respect of labour that result from the geographical position of Charchan and the economic conditions prevailing in the Tārīm basin. That the existing canal carries far more water than can be used for the cultivation of all land actually taken up on the left bank was evident from what I saw on a visit to the canal head, situated about seven miles from Charchan-bāzār, and on the route to Kapa.[10] The main canal, there about 60 feet wide and 2½ feet deep, is filled at all seasons, and the condition of the ground on either side showed that it is liable to be frequently flooded by overflow from the carelessly kept embankments. Nowhere either there or about the cultivated area did I notice any salt efflorescence. The fertility of the soil is proved by the fact that fruit of all kinds, with the exception of grapes, can be grown in plenty at Charchan even on newly reclaimed land.

My two days' halt at Charchan had enabled me to hire nine additional camels much needed for my contemplated work in the Lop desert. But if I was thereby reassured as regards the important problem of transport, this was more than counterbalanced by the news I received there that a serious disturbance had just occurred at Charkhlik, the chief inhabited place of the Lop region and the necessary base of supplies and labour for my intended explorations.

' Revolutionaries ' at Charchan.

The Chinese revolution of 1911–12, which resulted in the downfall of the Manchu dynasty, had been accompanied in many parts of the ' New Dominion ' by local outbreaks against the provincial administration. These had been confined entirely to the Chinese element and been fomented mainly, if not solely, by the small but turbulent floating population of ex-soldiers, office-seekers and gamblers who are to be found in all the principal towns of Chinese Turkestān and are ever on the look-out for illicit gain by blackmail and, if chance offers, by plunder. By 1913 the authority of the new republican administration backed by Yüan-shih-k'ai's central government had gradually asserted itself. In the northern and western oases it had curbed the influence and power for mischief of these undesirable Chinese elements, known to the peaceful indigenous population by the comprehensive designation of *kamar-bāz*, i. e. gamblers, or as *kara-sepech*, ' black hats ', from the imitation of quasi-European costume adopted by them since the revolution. In the south of the Tārīm basin, however, the complete absence of reliable Chinese troops had prevented energetic measures being taken against them, and in consequence I had found both at Khotan and Keriya the Chinese district magistrates seriously hampered by the machinations of the leaders of these so-called ' revolutionaries ', in reality adventurers and gamblers. A number of these appeared to have found a convenient field of activity in the distant oasis of Charchan. Through

[8] Cf. *Serindia*, i. p. 301.

[9] The crystal bead, Char. 02 (see List below), was said to come from the same site.

[10] The head of the main canal has been correctly shown in the map. The separate canal there marked to the north is but a branch of it. Another small error is the omission of route crosses in red along the route leading south as far as the canal head and along the caravan road where it crosses the oasis from west to east.

it passes most of the gold brought down from the pits in the Arka-tāgh and nominally reserved for official purchase only. Illicit acquisition of such gold meant profit, as did also the smuggling of opium into Kan-su, for which Charchan offered a safe base.

On my arrival at Charchan I learned from native traders that a small but well-armed party of these people, incensed at the detention by the Charkhlik district magistrate of a large consignment of smuggled opium, had about a fortnight before set out for Charkhlik. After committing some outrages *en route* they were reported to have attacked and captured the unfortunate magistrate. The Chinese sub-divisional officer of Charchan had been helpless to prevent the outbreak and, being overawed by the set of 'revolutionaries' who had remained behind, was evidently sitting on the fence. He considerately provided me with two recommendations for the Charkhlik Ya-mên. One was addressed to the helpless Amban, on the assumption that he had by some means regained freedom and authority, and the other to the leading spirit of the local 'revolutionaries', a Ssŭ-yeh or petty official out of employment, who had started for Charkhlik on learning of the success of the *coup* and who was shrewdly guessed to have been installed in office instead of him. Revolutionary coup at Charkhlik.

We started from Charchan on New Year's Eve, 1914, and did the desert journey of about 142 miles to Vāsh-shahri, the westernmost inhabited place of the Charkhlik district, in seven marches. The route followed was the usual one for caravans, leading along the left bank of the Charchan river as far as Lashkar-satma (Map No. 22. D. 3, 4; 26. A, B. 3). Down to this point it was new to me, but as it has been followed by other travellers and fully recorded,[11] no description is needed. Route along Charchan river.

As regards points of antiquarian interest I may note that the small mound known as *Tim* and situated about 10 miles below Tatran (Map No. 22. D. 3) was visited by me on my second journey and then recognized as probably representing the remains of a Stūpa base.[12] Its position near the left bank of the river proves the existence here of a small settlement in Buddhist times, and this well agrees with the wording of the Chinese itinerary of T'ang times, previously discussed, which seems to indicate that at that period, too, the route coming from Hsin-ch'êng or Vāsh-shahri crossed to the left bank of the river somewhere about Lashkar-satma and followed it to Chü-mo or Charchan.[13]

I found that Tatran, now the only inhabited place between these two localities, had increased to about 25 households against the 8 or 10 which it included in 1906 according to the statement of my old guide, Ismail 'Pāwān', a descendant of the original founder of the little colony and now once again with me. There was said to be abundance of water at all seasons for a further extension of the cultivated area. But two abandoned canals showed that special difficulties exist here, owing to the rapid silting up of the channels, which cannot be cleared with the necessary regularity, owing to the inadequate supply of labour available. Increase of cultivation at Tatran.

After leaving Tatran we did not meet with a single wayfarer, which struck me as strange at the time and left me in doubts as to the situation we might find at Charkhlik. But when approaching on January 6th the jungle belt which from the west screens the ruined site of Vāsh-shahri (Map No. 26. C. 3), we found the route guarded by a large party of armed Muhammadans who at first from a distance mistook us for a fresh batch of 'revolutionaries' and were preparing to resist (Fig. 106). Fortunately the mistake was promptly cleared up, and from Rōze Bēg, the headman of Vāsh-shahri and an old acquaintance, I learned the queer story of the course that events had Arrival at Vāsh-shahri.

[11] See, e.g. Hedin, *Reisen in Z.-A.*, pp. 170 sqq.; also for the section from Lashkar-satma to Charkhlik, *Desert Cathay*, i. pp. 331 sqq.

[12] Cf. *Serindia*, i. p. 304.

[13] Regarding this T'ang itinerary and the identification of the localities it mentions, see *Serindia*, i. p. 306, and M. Chavannes' Appendix *A*, *ibid.*, iii. p. 1331.

For a more direct track from Charchan to Vāsh-shahri, which Marco Polo seems to have followed and which probably led through the sandy desert south of the river's right bank, cf. *Serindia*, i. pp. 308 sq.

taken. The first party from Charchan, after capturing the Bēg and what valuables they could secure at Vāsh-shahri, had proceeded quickly to Charkhlik, pretending to have been sent by the order of the Tao-t'ai of Kāshgar to arrest the Amban on an accusation of anti-revolutionary plotting. Attacked in his Ya-mên at nightfall and deserted by his attendants and the local headmen whom he had hurriedly gathered, the helpless magistrate had had to flee for life. He hid in a cultivator's house for the night; but his refuge was betrayed, and when the bandits set fire to the place in the morning and forced him to come out he was struck down and captured, all the local Muhammadans looking on with placid indifference. He was then subjected to tortures until he disclosed the place where his official moneys were hidden, and after some days cruelly put to death.

Revolutionary régime at Charkhlik.

The leader of the band of 'patriots' had set himself up as Amban *ad interim* and was duly obeyed by the local headmen, Rōze Bēg himself included. The Ya-mên establishment promptly resumed work under him; a letter justifying the 'patriots'' action was duly dispatched to the Governor-General at Urumchi, and for a few days all seemed to go on smoothly, while the party helped themselves freely to what good things and money the head-quarters of the poor Lop district could offer. Fortunately the new Amban's 'revolutionary' régime proved short-lived, and the introduction addressed to him which I had brought from Charchan proved as useless as that addressed to his predecessor. Within less than a week there arrived from far-away Kara-shahr in the north a small detachment of reliable Tungan troops. The previous Amban had been forewarned and had summoned help; they came too late to save him, but quickly avenged his murder. Commanded by a capable young officer and stealthily introduced at night into the oasis by the same adaptable Bēgs, these soldiers found little difficulty in surprising the 'revolutionaries'. Most of them were killed in their sleep, their leader dispatched after brief resistance, and the rest captured. So tranquillity reigned once more at Charkhlik, and Rōze Bēg was now displaying his zeal as a supporter of legitimate authority, by laying an ambush for more 'patriots' expected to come from Charchan, eager to share the spoils of 'office' and ignorant of the turn affairs at Charkhlik had taken. In this loyal task he duly succeeded within a day of my passage, thereby adding some more captives to the list of those subsequently executed at Charkhlik.

Historical interest of outbreak.

The story of this short-lived revolt deserved brief record here partly for its quasi-historical interest and partly because the conditions that it created at Charkhlik had some influence, as it turned out, on the execution of my plans for the winter's work. This revolutionary coup was the last of a succession of outbreaks that since 1912 had threatened the maintenance of proper Chinese control, and with it of peace and order, in the Tārīm basin. Its course illustrates the traditional weakness of the indigenous Muhammadan population; the facility with which any adventurers from outside, even if of a race far from warlike, can exact from it temporary obedience; and also the time-honoured Chinese methods of restoring order.[14] I shall presently explain how the administrative confusion arising from these local events first hampered the preparations for my travels, and then proved to be good fortune in disguise; for it saved them from being frustrated by official obstruction.

Ruined site of Vāsh-shahri.

I had examined the ruined site west of Vāsh-shahri when I first passed there in November, 1906, and a full account of it has been given in *Serindia*.[15] My rapid visit on this second occasion revealed very few structural remains other than those previously described, and none of importance.

[14] The way in which the energetic young Chinese officer sent from Kara-shahr with his handful of Tungans surprised the murderous gang of 'revolutionaries' in their sleep and practically disposed of them curiously recalls, *mutatis mutandis*, the method followed by the great Chinese leader Pan Ch'ao when in A. D. 73 he saved himself at the Shan-shan capital, perhaps at the very site of Charkhlik, from a dangerous situation by attacking at night with only thirty-six men the camp of the unsuspecting Hun envoy and exterminating him and all his followers; cf. Chavannes, *Trois généraux chinois*, *T'oung-pao*, 1906, pp. 218 sqq.

[15] See *Serindia*, i. pp. 306 sqq.

Badly decayed wall fragments of a second small structure in hard-burnt bricks, half-hidden below a tamarisk-cone, were traced not far from the one described in *Serindia*. The bricks here measured 18 inches by 9 with a thickness of 3 inches. Near the north-east edge of the site an area over 200 yards in width proved to be thickly covered with remains of skeletons; the position of those to which tamarisk-cones had offered some protection suggested that the bodies here buried were not those of Muhammadans. On a ' witness ' about six feet high in the midst of this area I found a wall fragment some 15 feet long; it still rose to a height of over 8 feet and may have belonged to an enclosure of graves. Its sun-dried bricks were somewhat larger (18" × 9" × 4½") than those found in the ruined dwellings described in *Serindia*.

'Tati' remains from Vāsh-shahri.

Among the small objects in glass, pottery, and metal which were picked up from among the 'Tati' debris covering the bare wind-eroded ground among the tamarisk-cones, special mention may be made of the fragments of grey porcellaneous stoneware, glazed chiefly in greenish blue (V.S. 015, 018, 019, Pl. LI) or else with slightly crackled surface (V.S. 014).[16] They correspond closely in character to specimens previously collected by me from this site and recognized by Mr. R. L. Hobson as dating from the period of the Sung dynasty.[16a] Other fragments of fine stoneware, glazed dark black-brown (V.S. 07–12), show close resemblance to ceramic products ascribed to the T'ang period. The only coin obtained from the site was a Chinese ' cash ' of the Ch'ung-ning period (A. D. 1102–7). Its date confirms the conclusion I had drawn from numismatic evidence obtained on my former visit that the site was occupied down to the twelfth century A. D.[17]

Hsin-ch'êng located at Vāsh-shahri.

In *Serindia* I have already discussed the evidence that the site of Vāsh-shahri marks the position of Hsin-ch'êng 新城, ' the New Town ', which an itinerary of the T'ang Annals mentions as having been settled by K'ang Yen-tien, a chief of Sogdian origin; a similar mention in a Chinese geographical text of A. D. 885, recovered by me from the caves of the ' Thousand Buddhas ' of Tun-huang, permits us to ascribe its foundation to the period A. D. 627–49.[18] I have also recorded in the same work the impressions I formed on my first visit regarding the intermittent growth of the little oasis that since the Chinese reconquest of the Tārīm basin, after the last Muhammadan rebellion, had been established about five miles to the east of the old site.[19]

Increase in cultivation of Vāsh-shahri.

My renewed visit under Rōze Bēg's intelligent guidance, brief as it was, allowed me to make some interesting observations as to the development that had taken place there since 1906. We reached the western edge of land newly brought under cultivation immediately after crossing the summer flood-bed, known as *Kōne-daryā* (the ' old river '), and found well-tilled fields with young plantations of poplars and fruit trees extending for fully a mile and a half eastwards, and stretching even farther from south to north. Instead of the few tumble-down huts that I had previously seen near a small granary and official rest-house, I now found at the central hamlet quite a number of substantial dwellings, including the Bēg's own spacious house and a fine mosque. In all these buildings the timber was wild poplar, but well carved. The concourse of prosperous-looking cultivators whom I met there offered a striking contrast to the few roving men pretending to be settlers who were present in 1906. It showed that Rōze Bēg's assertion that his colony had grown in the interval from 20 to about 127 householders could not be very far from the truth.

Irrigation resources of Vāsh-shahri.

On the morning of January 7 I followed the much-improved main canal, which accounted for the great extension of cultivated ground, to its head about two miles south of Rōze Bēg's house. Being 14 feet wide and 2 feet deep it fully bore out his statement that a volume of about four ' Tāsh ' or millstones was at all times available in the river, while the increased volume of about 15 ' Tāsh '

[16] See below, Mr. Hobson's Appendix *D*.

[16a] Cf. *Serindia*, i. pp. 307, 316.

[17] See *ibid.*, i. p. 307.

[18] Cf. *Serindia*, i. p. 306; also Pelliot, *J. Asiat.*, 1916, jan.–fév., pp. 119 sqq.

[19] See *Serindia*, i. p. 309; *Desert Cathay*, i. pp. 334 sq.

in the spring greatly exceeded the irrigation needs of the present colony at that season. From June till September the volume of *ak-su* was said to be so great that besides filling completely the main channel of the river, known as *Kum-daryā*, which is over 170 yards wide at the canal head, it also overflowed into the two former river-beds to the east of the ruined site (see Map No. 26. c. 3).

Old canal traceable.

It is clear in view of these statements that the abandonment of the old oasis marked by the ruined site to the west cannot be ascribed to any great diminution of the river's volume. The ancient canal, which once brought irrigation to the site and which the caravan route crosses, is according to Rōze Bēg's statement still clearly traceable for a considerable distance, in fact as far up as the point where the Vāsh-shahri river first spreads out on the gravel glacis. There a stone-built dam intended to protect the canal head still exists, as attested also by Professor E. Huntington.[20] The ancient canal, though about half as wide again as the new one, would yet, in Rōze Bēg's belief, not absorb all the water even now available in the river. But since the latter has cut its new main bed considerably deeper than the old, no attempt could be made to restore the old irrigation system.

Traces of old routes and canals.

I may here mention that Rōze Bēg reported the survival of traces suggesting that an ancient track was once carried over wooden scaffolding up the extremely narrow gorge through which the Vāsh-shahri river debouches from the mountains, a gorge which now is quite impracticable for traffic. The high grazing ground in the mountains known as Sulam-yailak, to which this track probably led, is now reached by another difficult path ascending the similarly narrow gorge of the river shown by the map (No. 26. B, c. 4) as Tāsh-sai. It was said that old canals, supposed to have once been fed by that river and by the stream of the Chukur-chap to the east, could be traced in places between the high dunes that cover the area to the south of the caravan track from the Charchan river to Vāsh-shahri. But Rōze Bēg himself had not seen them. On the other hand this energetic colonizer believed that water could be brought from the bed of the Tāsh-sai, which also carried spring water (*kara-su*), to the scrub-covered plain about Chapan-kāldi (Map No. 26. B. 3), and he proposed to open new cultivation there. The success of his venture at Vāsh-shahri, where the last harvest had yielded some 2,000 Charaks (approximately 32,000 lb.) of grain for his own share, had evidently encouraged him.

OBJECT PURCHASED AT CHARCHAN

Char. 02. Crystal bead; rectang., with corners chamfered. Said to have been found near Yalghuz-dong. $\frac{3}{4}$" × $\frac{5}{12}$" × $\frac{1}{4}$".

OBJECTS FOUND AT VASH-SHAHRI SITE

V.S. 01. Copper (?) seal ring. Circular bezel with four projecting points equally disposed round edge. Device cut in the metal within incised ring. Well preserved. Diam. $\frac{11}{16}$".

V.S. 02–5. Four frs. of glass, dull green; as V.S. 06, but thinner except 02 which possibly belongs to 06. Gr. fr. (03) 1" × $\frac{3}{4}$", thickness $\frac{1}{16}$".

V.S. (Fort) 06. Fr. of neck of glass vessel, obscure green. Wavy band applied round neck. Diam. $1\frac{1}{4}$", h. $\frac{7}{8}$", thickness with band $\frac{1}{4}$".

V.S. 07–12. Six frs. of glazed stoneware, prob. from same straight-sided bowl. Body of fine buff clay, glaze on each side dark black-brown. *010* and *011* are frs. of straight side, with plain rim and two raised bands moulded on exterior in faint relief, and similar fainter corrugations on sides. *012* is from wall thickening to base, with glaze on outside coming down in irregular streaks, and glaze on inside cut away in band round turn of wall. 09 is from middle of base, unglazed on under-side. Same ware as So. 0031, *Ser.* iii. p. 1107. Chinese. Gr. fr. (*011*) $1\frac{11}{16}$" × $1\frac{11}{16}$". Thickness $\frac{3}{32}$" to $\frac{3}{8}$".

V.S. 013. Fr. of glass, olive green, clear but bubbly. $1\frac{1}{4}$" × $\frac{3}{4}$" × $\frac{1}{20}$".

V.S. 014. Fr. of glazed stoneware, from plain rim and side of bowl. Body of fine porcellaneous buff frit, covered each side with slightly crackled glaze, brown at rim and turning to fine mauve below. 1" × 1" × $\frac{3}{16}$".

V.S. 015. Fr. of glazed stoneware; body of dark grey clay, with thick glaze either side of dull blue. Cf. V.S. 019, Pl. LI, for ware of same type but inferior glaze. $1\frac{3}{4}$" × $\frac{7}{8}$" × $\frac{1}{4}$".

[20] Cf. *Pulse of Asia*, p. 222.

V.S. 016. Fr. of pottery. Clay showing black on faces, and in section red below surface, with even layer of black again in middle. 1⅝" × ⅝" × 5/16".

V.S. 017. Rough flake of jade; light green, polished on one side. 2⅜" × 1" × ¼".

V.S. 018. Fr. of glazed stoneware; body of fine porcellaneous frit, with transparent very pale green glaze, crazed, on either side. ¾" × 7/16" × 1/16".

V.S. 019. Fr. of bottom of glazed stoneware bowl, with small ring-base. Body of dark grey clay, coated with heavy badly prepared greenish-blue glaze. On outside where glaze has run down it is nearly ¼" thick. Ring-foot rubbed smooth. For similar ware, see *Ser.* i. p. 316, V.S. 0022–3. 2¼" × ⅞" × ¾", diam. of foot 1¾". Pl. LI.

V.S. 020. Fr. of pink marble (?). Even thickness. 2⅛" × 1⅜" × ¼".

V.S. 021. Fr. of pottery; pale red clay, somewhat gritty; outer face mostly chipped away. 2⅜" × 1⅝" × 5/16".

V.S. 022. Fr. of pottery; fine red clay, well washed. 1 13/16" × 1 11/16" × ⅜".

V.S. 023. Fr. of pottery; coarse ill-levigated dark-red clay, burnt to black. 2" × 1¼" × 5/16".

V.S. 024. Rectang. piece of wood, with hole through centre and Chin. char. to R. p. Split and weathered. 1⅝" × ½" × ⅜".

V.S. 026. Fr. of wall of large pottery vessel, red clay, orn. with incised annular lines and large festoon pattern. Coarse ware. 4⅞" × 3¾" × ⅝".

V.S. 027. Fr. of mouth and shoulder of large pottery vessel. Thick slightly rolled rim, short neck, sharply out-curving body. Red clay. 5" × 3⅝" × ⅝".

V.S. 028. Fr. of pottery vessel, red clay. 2¼" × 1⅝" × ¼".

SECTION II.—THE SITES OF KOYUMAL AND BĀSH-KOYUMAL

Arrival at Charkhlik.

Two marches by the same caravan track that Marco Polo and other old travellers before him must have followed brought me on January 8 to Charkhlik. From my visits in 1906–7 I was well aware of the very modest resources of this little oasis, the only settlement of any importance in the Lop region and its official head-quarters. It was here that I had to collect the whole of the supplies and additional camel transport, as well as most of the labour, needed during the next three months for the explorations I had planned in the absolutely barren desert between the terminal marshes of the Tārīm and Tun-huang. I had been fully prepared for the difficulties that would attend this task even under ordinary circumstances. But it did not take me long now to realize how much the recent local upheaval and all its consequences had increased them.

Difficulties about supplies, &c.

After the irruption of the 'revolutionaries' from Charchan and the clear sweep made by the Tungan troops, who, when repressing it by their coup on the night of December 29, had 'by mistake' killed even the few Chinese subordinates of the legitimate Amban, there was left no Chinese civil authority whatever. In these circumstances it was impossible to hope for effective assistance from the easy-going Lop-liks, the owners of most of the cultivated ground, and their indolent Bēgs. Within a few days of my arrival comparatively large bodies of Tungan troops passed through, who were sent from Kara-shahr to operate against the numerous 'revolutionary' elements known to exist among the Chinese garrisons of Keriya and Khotan. The consequent requisitions threatened completely to exhaust the slender resources of Charkhlik and aggravated the trouble and delay involved in obtaining adequate supplies and transport for my several parties. The six days' stay I was obliged to make at Charkhlik barely sufficed to secure even a portion of my requirements. Though I had the help of a few old Lop friends, like Tursun Bai, now once more my host, it was an anxious time for me. I should have chafed less at these difficulties had I realized at the time what a boon in disguise the revolutionary disturbance had been for me.

Charkhlik in historical geography.

I have discussed in *Serindia* the recent history of Charkhlik and its present conditions, and described the scanty remains of earlier occupation that have survived within the oasis.[1] I have also examined in detail the position occupied by Charkhlik in the historical geography of the Lop region, the *Lou-lan* or *Shan-shan* of the early Chinese records, and indicated the reasons for locating there Marco Polo's 'City of Lop', Hsüan-tsang's *Na-fu-po* (i. e. Lop), and the *Shih-*

[1] See *Serindia*, i. pp. 311 sqq.

ch'êng or 'Stone Town' of the T'ang Annals.[2] Similarly as regards an earlier period, I have shown it to be very probable that the town of *I-hsün* 伊 循, which in the Han Annals and in Li Tao-yüan's commentary on the *Shui-ching* is mentioned as a chief place of the kingdom of Shan-shan or Lou-lan and the site of a Chinese military colony established in 77 B. C., must be looked for within the present oasis of Charkhlik.[3]

Ancient remains at Charkhlik.

Though the length of my renewed stay at Charkhlik was directly due to the practical difficulties above referred to, I was fortunately able to apply it also to profitable archaeological work. Within the oasis itself, indeed, the only ancient structure traceable, beyond the remains already described in *Serindia*, was a small mound of solid brickwork, about 15 feet in diameter and situated near the centre of the ruined circumvallation or *sipil*. By its shape and the large size of its sun-dried bricks, about 18" × 9" × 3½", it suggested the base of a Stūpa. As it was adjoined on two sides by modern dwellings no closer examination was possible. But to the south of the cultivated area I was able to explore two small sites that had before escaped my attention, and these proved of some interest. Both had been visited in 1910–11 by Mr. Tachibana, the Japanese traveller, and the remains of both showed evidence of having been superficially searched in places.

Following the right bank of the main bed of the Charkhlik river for about a mile beyond the southern edge of the present cultivated area, I reached a small ruined enclosure known as *Koyumal*, standing on the bare, gravel-covered, alluvial plain. Its much-decayed walls, built of sun-dried bricks about 8 feet thick, appear to have formed a somewhat irregular quadrangle of which the eastern face measures approximately 218 yards (see plan, Pl. 8). As the west wall had been carried off completely by an encroachment of the river, the lengths of the other sides could not be exactly determined. It therefore remains doubtful whether the enclosed area was intended for a square or an oblong. Near its centre rise the remains of what undoubtedly was a Stūpa base, 28 feet 3 inches square, to a height of about 14 feet. The sun-dried bricks used for its masonry measured as elsewhere 17 × 9 × 4 inches. A passage, a little over 4 feet in width, was traceable on the north, south, and east between the Stūpa base and a much-decayed enclosing wall (see inset, Pl. 8).

Site of Koyumal.

On the west there stood, at a distance of about 9 feet from the base, what appear to have been two small Vihāra chapels, each about 20 feet long and 9 feet wide; between them stairs about 8 feet broad seem to have led up to the foot of the Stūpa proper. But as all the masonry to the west of the base had decayed to within a foot or so of the floor level, the constructive details could not be determined with certainty. The remains of five small niches, separated by stucco pilasters and each retaining the feet of a standing stucco figure, could, however, be traced along the east wall of each chapel (Fig. 111). In the niche nearest to the north side of the stairs the legs of a robed figure in stucco were preserved up to the knees, i. e. to a height of 14 inches. In each of the chapels there survived near the foot of the stairs an oblong pillar base in wood, measuring about 16 inches by 10, with a raised circular socket.

Remains recovered at Stūpa.

From the debris covering the floor of these chapels numerous fragments of painted plaster emerged (Koy. I. 05–46), which had undoubtedly once formed part of a large floral background in the mural decoration. Most of the fragments show lotus-petal or acanthus-like imbrications. The fragment of painted wood marked Koy. i. 03, showing plant motifs, may possibly have belonged to one of the wooden pillars of which the bases were found *in situ*. Among several fragments of carved wood may be mentioned one from an open-work detail, Koy. 01 (Pl. XVI), and part of a gilded right hand, of life-size and well modelled, Koy. I. 02 (Pl. XVI), which, by the clearly shown web between the fingers, is proved to have belonged to a Buddha figure. Among the stucco relief fragments, some of which may have belonged to the figures already mentioned,

[2] See *Serindia*, i. pp. 318 sqq.

[3] Cf. *ibid.*, i. pp. 325 sqq., 342 sq.

Koy. I. 049 is that of an arm or leg with painted drapery suggesting brocade. From the condition of all these debris remains it was only too obvious that the shrine had at some time been purposely destroyed and perhaps quarried for timber.

Ruin of monastic structure.

A low mound about 30 yards to the south-west of the ruined shrine was found to contain the remains of what evidently was a small monastic structure, Koy. II, with walls built in sun-dried bricks and decayed to within a foot or two of the ground. The detail plan in Pl. 8 shows the disposition of the rooms, several of them provided with sitting or sleeping platforms of clay. The southern row of small rooms, resembling cells, had been apparently searched by Mr. Tachibana; those to the west and east were cleared without yielding any finds, other than the fragment of a circular bronze disc, probably part of a mirror (Koy. II. ii. 01). But in the large central room i, measuring 27 feet by 24 and probably used as a place of assembly by the Saṁgha, there were found a number of fragments of palm-leaf manuscripts in Sanskrit and early Brāhmī script of the Gupta type, including the left portion of a very neatly written Pōthī leaf (Koy. II. i. 09, Pl. CXXI).[4] In addition small fragments of birch-bark inscribed in Sanskrit and Gupta characters (Pl. CXXI) were recovered in the same room, near the edge of the sitting platform by the south wall.

Interior of walled enclosure.

Apart from the two ruins just described and an almost effaced oblong building to the west of II, no structural remains were traceable within the walled enclosure. Towards its north-western corner a well-marked depression, surrounded by gravel mounds and measuring 70–80 feet across, evidently represented a tank once fed from the river. But far more curious were lines of rough stones, which, as the plan (Pl. 8) shows, divide the enclosed area in the fashion of an irregular chess-board. Some narrow lanes, starting from the structures in the centre and running either parallel to, or at right angles across, these lines, seemed to mark off sections of the ground. The lines of stones themselves might at first sight have suggested wall foundations; but the stones were too loosely placed and the arrangement of the lines too schematic to support this idea. It occurred to me at the time that the intention might have been to mark thus the lay-out of an encampment, after the manner in which the main thoroughfares of standing camps in the plains of India are often picked out with stones or bricks painted white. There is, however, nothing in the disposition of the lines, as the plan actually shows them, to bear out this conjecture.

Lines of stones within enclosure.

The temptation is greater to recognize in these puzzling lines the remains of small stone heaps intended to give support to trellis-work carrying vines, such as is frequently seen in the orchards of modern Turkestān oases and the use of which in earlier times is strikingly attested by the remains I was able to trace in the ancient vineyard of the Niya Site previously described.[5] And in this connexion reference may be made here to a curious notice concerning a locality near the 'Stone Town', 石城 *Shih-ch'êng*, i. e. Charkhlik, which a Chinese geographical text of A. D. 885 has preserved. It is found in the MS. Ch. 917 which I brought away from the Caves of the Thousand Buddhas of Tun-huang and from which M. Pelliot has translated short extracts bearing on the region of Shan-shan or Lop.[6] There we read: 'The Grape Town (*P'u-t'ao-ch'êng* 蒲桃城): [from this town] to the south, it is 4 *li* to the strong place of the Stone Town. It was constructed by K'ang Yen-tien. He planted vines in the middle of the town; that is why it is called the Grape Town.'

Location of 'Grape Town'.

Were it permissible to assume a mistake in the record of the bearing, the distance of 4 *li* being in reality reckoned to the south of the 'Stone Town' or Charkhlik, one would be tempted to look for the 'Grape Town' founded by the Sogdian chief at the site of Koyumal. But in the absence

[4] For these MS. fragments see Mr. Pargiter's inventory in Appendix *E*.

[5] See above, p. 145.

[6] Cf. Pelliot, 'Le Cha-tcheou tou tou fou t'ou king', in *J. Asiat.*, 1916, jan.–fév., p. 123.

of any definite evidence I must content myself with the observation that the remains brought to light at the ruins, scanty as they are, including the fragments of manuscripts, point to the site having been occupied during early T'ang times.[7]

Site of Bāsh-Koyumal.

The second site to the south, known as *Bāsh-koyumal*, also proved to be small, but showed some features of interest. It lay about one mile and three-quarters to the SSW. of Koyumal, beyond some shallow branches of the river in which the water, under the protection of its cover of ice, was then spreading over the gravel plain. Above the western bank of what evidently is a main bed of the Charkhlik river, about 25 yards wide with water flowing freely down its centre, there rises very steeply a plateau of gravel to a height of about 25 feet. The north-eastern end of this plateau overlooks the head of a canal carrying water to the lands of Tatran opposite Charkhlik proper. At that end there survives part of a circumvallation, semilunar in its present form and extending from one point of the plateau edge to another some 205 feet farther south (see sketch plan, Pl. 9). The extant portion of the wall line is not exactly the segment of a circle, but shows six facets, each about 45 feet long on the outside. Assuming the plan originally to have been that of a sixteen-sided polygon, the diameter of the whole circumvallation may have been approximately 210 feet.

Remains of enclosing wall.

The enclosing wall built of sun-dried bricks, 17" × 9" × 4", showed a thickness of 4 feet 9 inches and on the west, where best preserved, still stood to a height of over 6 feet. Elsewhere it had decayed into the appearance of a low mound, but its original thickness could be traced even there on excavation. Outside, a well-marked depression running along the wall indicates the former existence of a ditch. The enclosing wall both on the north and south breaks off abruptly where it reaches the plateau edge. As this descends very steeply to the river-bed, the conclusion suggests itself that the remainder of the circumvallation, together with the eastern half of the area enclosed, has been washed away by prolonged encroachment of the river as it sweeps against its right bank.

This conclusion is supported by the survival of a massive wall (marked II in plan), about 10 feet thick and over 50 feet long, close to the edge of the plateau and towards the centre of the area (Fig. 109). Its position suggests that it belonged to a central keep or tower of the ruined fort, probably square in shape, the other walls of which have disappeared owing to erosion of the ground. At the meeting-point of two facets of the enclosing wall on the west, a gate about 7 feet wide leads into the interior of the small fort. Immediately to the south of a broken wall running from this gate towards the supposed central structure stands a much-decayed mound, which on excavation was found to contain the square base of a Stūpa or shrine with an enclosing passage (marked I in plan, Pl. 9).

Ruined base of Stūpa.

This base, badly broken on all sides, as Fig. 107 shows, probably by treasure-seekers' operations, measured 12 feet square and at its centre still rose to about 9 feet in height. It was built of sun-dried bricks measuring 17" × 9" × 4", like those found at Koyumal. Its faces, except on the east where the foundation of stairs was traceable, were found to retain at their foot remains of relievo decoration in plaster, consisting of rows of niches, five on each face. These niches, much injured and nowhere rising to more than a foot and a half, were 2 feet wide and were once divided by pilasters, probably resembling those in the Mīrān shrine M. II.[8] In some of the niches on the northern and western sides the feet of small stucco figures could still be distinguished.

[7] The only old site north of Charkhlik of which I received information and which I visited was a ruined enclosure situated beyond a patch of uncultivated ground known as *Toghraklik*, about 2½ miles from the Charkhlik Bāzār and on the main road leading north towards Lop. Its stamped clay walls, about 5 to 6 feet high, form an irregular quadrangle measuring about 90 yards by 80. I traced no evidence of antiquity within or outside it.

[8] See *Serindia*, i. pp. 485 sqq.; Fig. 120.



106. MEN OF VĀSH-SHAHRI GUARDING ROUTE FROM CHARCHAN.
(See p. 139.)



107. REMAINS OF SHRINE OR STŪPA AT BĀSH-KOYUMAL, SEEN FROM NORTH-WEST.



108. PACKING OF FRESCO PANELS FROM SHRINE M. V., MĪRĀN SITE.
Ruined Stūpa M. VI in background.



109. WALL NEAR CENTRE OF ENCLOSURE, BĀSH-KOYUMAL.



110. MEN REMOVING FRESCO PANELS FROM WALL OF SHRINE M. V., MĪRĀN SITE.



111. REMAINS OF RELIEVOS IN CHAPEL AT FOOT OF STŪPA, KOYUMAL.

Finds of Indian MSS. remains.

A very interesting find made below the niche to the left of the north-west corner was a large and fairly well preserved Pōthī leaf on silk (see Pl. CXXI), measuring 12 inches by 5, coated with a chalky substance and inscribed on both sides with a Buddhist text in Sanskrit and in fine Brāhmī script of the Gupta type.[9] It is, as far as my knowledge goes, the first specimen found of a manuscript on silk in Indian language and writing. In India the use of cotton fabrics as writing material is attested by Nearchos.[10] From the foot of the west face of the base numerous tiny fragments of a Sanskrit manuscript on birch-bark were recovered, while near the south-west corner there came to light also some minute fragments of a palm-leaf manuscript. These remains, fragmentary as they are, of Sanskrit manuscripts on birch-bark and palm-leaf, found both at Koyumal and Bāsh-Koyumal, are of special interest as suggesting import from India by the direct route that still leads from Charkhlik across the Tibetan plateaus to the south. The palaeographic character of their writing suggests that the shrine and the small fort around it were occupied during early T'ang times.

Approximate date of occupation.

The attribution to this epoch finds support in the fragments of stucco relief figures, including the portion of a Buddha head nearly life-size (B. Koy. i. 05, Pl. XX), and other small remains of wood and plaster, found at the foot of the Stūpa base and described in the List below. Special mention may be made of a number of broken fragments of coloured silks (B. Koy. 01), one inscribed with a Chinese character, which evidently belonged to votive banners. There were traces of the broken walls of small structures built against the enclosing wall both inside and outside it. The process of clearing them brought nothing to light except roofing materials and rough pieces of carved wood, of which the pegs or pins found close to the shrines (B. Koy. i. 06–7, Pl. XVI) are specimens.[11] A small detached dwelling, III, of which the much-decayed remains were traceable about 50 yards to the NW. of the north face of the enclosure, was found completely empty.

Purpose of circumvallation and shrine.

There is no direct evidence as to the exact purpose of the circumvallation as a whole. But it is noteworthy that it is situated on the track which leads from Charkhlik to the mouth of the valley drained by the Charkhlik river and thence to the high plateaus behind the northernmost K'un-lun range. It lies, moreover, at a point where cultivation would have been very difficult to maintain. I am thus led to conjecture that the ruined enclosure marks a defensible post intended to guard the approach to the oasis from the mountains on the south. At the same time the little Buddhist shrine within it, close as it still is to the head of canals irrigating the present Charkhlik oasis, may well, like the ruined Buddhist sanctuaries usually to be found at the 'Su-bāshis' of Turkestān oases, and the Muhammadan Ziārats which have in many cases succeeded them, have been an object of pilgrimage to the cultivators wishing to secure adequate irrigation for their fields.[12]

OBJECTS EXCAVATED FROM RUINED SHRINE OF KOYUMAL

Koy. 01. Fr. of carved wood, prob. from openwork detail. Fr. of plain edge at top. Below, part of openwork pattern of intersecting curved bands of pearls or seeds with plain oblong boss over point of section. Probably from canopy over figure of Buddhas. 4¾″ × 1¾″ × 1¼″. Pl. XVI.

Koy. i. 01. Four frs. of painted wooden panels, in green, black and white. Subject indistinguishable. Wood perished. Gr. fr. 6¼″ × 1 1/16″ × 3/16″.

Koy. i. 02. Part of wooden R. hand of Buddha, gilded, life-size. Two middle fingers, half little finger, back and wrist remain, palm split off. Through palm is small dowel, and second at base of second finger, evidently for attachment of some object to palm; cf. *Ser.* iv. Pl. CXXXVII, Mi. xviii. 004. Fingers slightly curved and tapering, with short-trimmed nails. Web between fingers clearly shown. Good work, well preserved. 12″ × 3″. Pl. XVI.

[9] For a description of this leaf and other MS. remains, see Mr. Pargiter's Appendix *E*.

[10] Cf. Bühler, *Indische Palaeographie*, p. 88.

[11] These pegs may be compared with the decorated pins found at certain Lou-lan shrines (see *Serindia*, i. p. 398; iv. Pl. XXXV, L. B. ii. 002; iv. 002), which certainly served for fastening wooden beams or panels to a timber framework.

[12] See *Anc. Khotan*, i. p. 109; *Serindia*, iii. pp. 1151 sq., 1155; above, pp. 64, 69.

Koy. I. 03. Stucco relief fr., hair from Buddha head, in small spiral curls. Remains of blue colour. White plaster. 2½" × 3".

Koy. I. 04. Stucco fr., with rounded surface showing traces of black paint (?) and oval patch unpainted. Unintelligible. 4" × 3½" × (gr. h.) 2".

Koy. I. 05–46. Fresco frs., all in same style and colouring, and evidently from same wall surface, prob. large floral background. Majority of pieces show lotus-petal imbrications in bold black outline on grey, copper-green, pink, or buff ground; e. g. 013, 014, 016, 018, 039–41, &c.

Others show festoon-like bands of copper-green or pink, with same heavy black outline and folds, on buff ground; e. g. frs. 05–07, 029, 031, 034, 036, 042, 043, 045, &c. *046* shows part of rectilinear border, with series of acanthus-like imbrications, in shaded pink with brown outlines and veins, on darker pink ground; a band of copper-green on either side, and fr. of black field with white outline on L. *09–011* (joined) shows part of similar acanthus band. All on soft mud backing, very friable. Gr. fr. (*046*) 8½" × 5½".

Koy. I. 047. Fresco fr., showing outline of human face and R. eye. Badly defaced. 3" × 2½".

Koy. I. 048. Stucco relief fr.; band in 1" relief, with groove ½" within edge; inner side broken away. Painted pale pinkish buff, with scattered copper-green and buff flowers with black outline; cf. Koy. I. 049. Soft clay full of goat's hair; very friable. 5" × 2" × 1".

Koy. I. 049. Painted stucco fr.; arm or leg in high relief, painted with drapery, pale pink, with pink and blue flowers *semé*. Clay (treated with paraffin wax by F. H. A.). 5" × 3½", (relief) 2½".

Koy. I. 050. Stucco relief fr.; prob. leg of seated fig., in very friable clay, surfaced with fibrous mud, and painted green. Perished and disintegrated. 7" × 4" × (relief) 3½".

Koy. i. 01–2. Two fresco frs.; traces only of black lines on white ground; unintelligible. Backing clay. Gr. fr. 2" × 1½".

Koy. i. 03. Fr. of painted wood (vertical section), showing plant with acanthus leaves and green berries springing from root between two pink scrolls (one missing). Above and below, traces of running scroll of pink and brown leaves. Outlines black and pinkish-white; background dark pink. Resembles Italian orn. 1' 1½" × 1½".

OBJECTS FROM MONASTIC DWELLING OF KOYUMAL

Koy. II. i. 01–4. Four frs. of glazed pottery bowl; body of coarse red clay, exterior (only) glazed plain green with black line on 01. 02 shows turn of wall to flat base, also glazed on under-side; no base-ring. Sand-encrusted. Gr. fr. (02) h. 1¾", chord 4½", thickness ¼" to ⅜".

Koy. II. ii. 01. Fr. of thin bronze plate; quarter of circular disc, prob. part of mirror. Unengraved; oxydized. Orig. diam. *c.* 7½".

OBJECTS EXCAVATED FROM RUINED SHRINE, BASH-KOYUMAL

B. Koy. 01. Broken frs. of plain silk, from banners; red and white, and one fr. yellow. On one white fr. is Chin. char. boldly inscr. in black. On the yellow, marks in black paint. Very brittle. Inscr. fr. 1¼" × ¾".

B. Koy. 02. Stucco fr. of arm or leg in the round, with reed core. Clay painted pink. Length 6", diam. 2½".

B. Koy. 03–4. Stucco relief frs., of 'linen-fold' drapery painted pink. Clay mixed with vegetable fibre. Gr. fr. (03) 3" × 2½".

B. Koy. 05. Stucco relief fr.; slightly curved, gilded. Fibrous clay. 3½" × 4½".

B. Koy. 06. Fr. of wood. Flat lozenge-shaped piece, with round tenon at one end. 2¾" × 1" × ¼".

B. Koy. 07. Wooden knob, pear-shaped, with tenon at thick end. H. 4½", gr. diam. 2¼".

B. Koy. 08. Stucco relief fr. Top of head in very friable clay covered with close 'Ammonite' curls. 6½" × 6" × 3½".

B. Koy. i. 01. Fr. of wood, carved on one surface (broken) into gradini in relief, with traces of paint in sunk ground. 4" × 1¾" × ⅝". Pl. XVI.

B. Koy. i. 02. Fr. of wood, with oblong end chamfered on three edges of one surface to form transition to rough narrow continuation. 4½" × 1½" to 1" × ⅞" to $\frac{7}{16}$".

B. Koy. i. 03–4. Fresco fr., in two pieces, showing border of red and green bands on ground of mud colour, and a painted black mass, prob. hair or drapery. 9" × 4½".

B. Koy. i. 05. Stucco relief fr. Head of Buddha type nearly life-size, painted pink. Features small, eyes closed, Tilaka. Very friable clay mixed with fibre (now treated with paraffin wax). H. 6", gr. width 5½", gr. relief *c.* 3½". Pl. XX.

B. Koy. i. 06–7. Two wooden pegs, sq. in section, with large sq. heads, bevelled top and bottom. Roughly made. Length 6¾", length of head 2½", gr. width of head 1¼". Pl. XVI.

Section III.—RESUMED LABOURS AT MĪRĀN

The close vicinity to Charkhlik of the two sites just described and the consequent facility of employing comparatively large numbers of diggers had allowed me to complete their clearing by the evening of January 14th, and I was glad of this. The state of unwonted animation in which the little oasis was kept by requisitions for the troops marching on towards Keriya, by executions of captured 'revolutionaries', &c., had only added to the difficulty of securing the transport and supplies needed for my future desert explorations. I felt the strain of delay all the more because I knew that out of the limited winter season which alone could be used for these explorations some time would have to be devoted to supplementary work at the site of Mīrān before setting out for the main tasks northward. Only a small portion of the additional camels and food-stuffs required had been procured when this consideration of time obliged me to leave Charkhlik for Mīrān on January 15th. Start from Charkhlik.

The last day of my stay had brought me the great satisfaction of seeing R. B. Lāl Singh rejoin me in safety after fully four months of separation. Having left me in September beyond the Chichiklik pass, he had pushed on by forced marches through Yārkand and Khotan and had been able by the middle of October, in accordance with my instructions, to start triangulation of the main K'un-lun range from near Kapa (Map No. 23. B. 2), where our triangulation of 1906 had reached its eastern end. The work had to be carried on at great elevations and, owing to the lateness of the season and the total absence of local resources, was attended by very considerable hardships. But my indefatigable assistant faced them with the zeal and endurance of which he had so often given proof, and succeeded in extending his system of triangles, along with a careful plane-table survey, along the northernmost range, for over five degrees of longitude eastward, before excessive cold and snowfall obliged him to desist in the mountains to the north-east of Lop-nōr. A full account of the survey work thus accomplished has been given in the *Memoir* on the maps embodying the surveys of all my three journeys.[1] Reunion with Lāl Singh.

Not satisfied with having pushed this task as far as climatic conditions would permit, he continued his survey work with the plane-table along the route that leads towards Tun-huang through the inhospitable outer ranges of the Āltin-tāgh, snow-covered at the time. After reaching the small oasis of Nan-hu, explored on my second journey, he struck through the desert north and returned to join me by the track leading along the southern shore of the dried-up ancient sea of Lop. The difficulties of this track, fully described in *Serindia*[2] and the only one through the Lop desert that now, as in Marco Polo's time, is practicable for caravans, were illustrated by the fact that Lāl Singh's party found no ice yet formed at the most brackish of the springs along it, and consequently suffered much from the want of drinkable water.[3] Lāl Singh's surveys towards Tun-huang.

The two marches that brought me to Mīrān led along the desert track already twice followed by us in 1906–7 and offered no opportunity for fresh observations. Nor had any change, in the interval, come over the ruined site which extends to the east of the present course of the Mīrān or Jahān-sai river, and which marks the position of the earliest capital of the 'Kingdom of Shan-shan or Lou-lan', corresponding to the present Lop region. Its remains, as explored in 1907, and the abundant finds of interest they had yielded, have been fully described in *Serindia*.[4] There, too, will be found discussed all questions relating to the role that the site of Mīrān has played in Return to Mīrān.

[1] See *Memoir on Maps*, pp. 28, 109 sqq.

[2] Cf. *Serindia*, ii. pp. 549 sqq.

[3] It was, no doubt, the same cause that accounted for the break-down of the small caravan whose misfortunes I shall have occasion to refer to below when relating our journey over the dried-up sea-bed from the side of Lou-lan; cf. p. 300.

[4] See *Serindia*, Chap. XII. sec. ii–ix (pp. 456–547).

the historical topography of the Lop region.[5] In view of the past importance of the site I could not help being particularly struck by the altered aspect of modern Mīrān since my last visit. As the conditions attending it have some geographical interest and may help to throw light also on the history of the locality, I will briefly refer to them before giving an account of the supplementary archaeological work that occupied me here for a fortnight.

Cultivation at Mīrān.

In 1907 I had found cultivation at Mīrān confined to a narrow stretch of scattered and poorly tilled clearings. They extended for about two miles along, but at some distance from, the western bank of a shallow depression in which the main course of the Mīrān river, divided into several small branches, was flowing northward. Wheat and barley were grown there by the small colony of Lopliks, all fishermen, hunters, or herdsmen, established at Abdal and Kum-chapgan, a day's march northward on the terminal course of the Tārīm; and the cultivation was carried on in that somewhat intermittent fashion which accorded with their traditional semi-nomadic mode of life. Though some of these Lopliks were said, in 1907, to visit Mīrān for a few months in the summer, when the plague of insects grew particularly troublesome on the marshy banks of the Tārīm, no permanent abode of any sort existed at Mīrān. The dense jungle of wild poplars and tamarisks immediately adjoining the northern edge of the cultivated area was evidently considered sufficient shelter by these hardy visitors. At Abdal itself, even well-to-do folk like Nūr Muḥammad, the Bēg of the settlement, and Mullah Shāh, my quondam guide to the Lou-lan site, were content to live and store their possessions in reed-huts.[6]

New Loplik settlement at Mīrān.

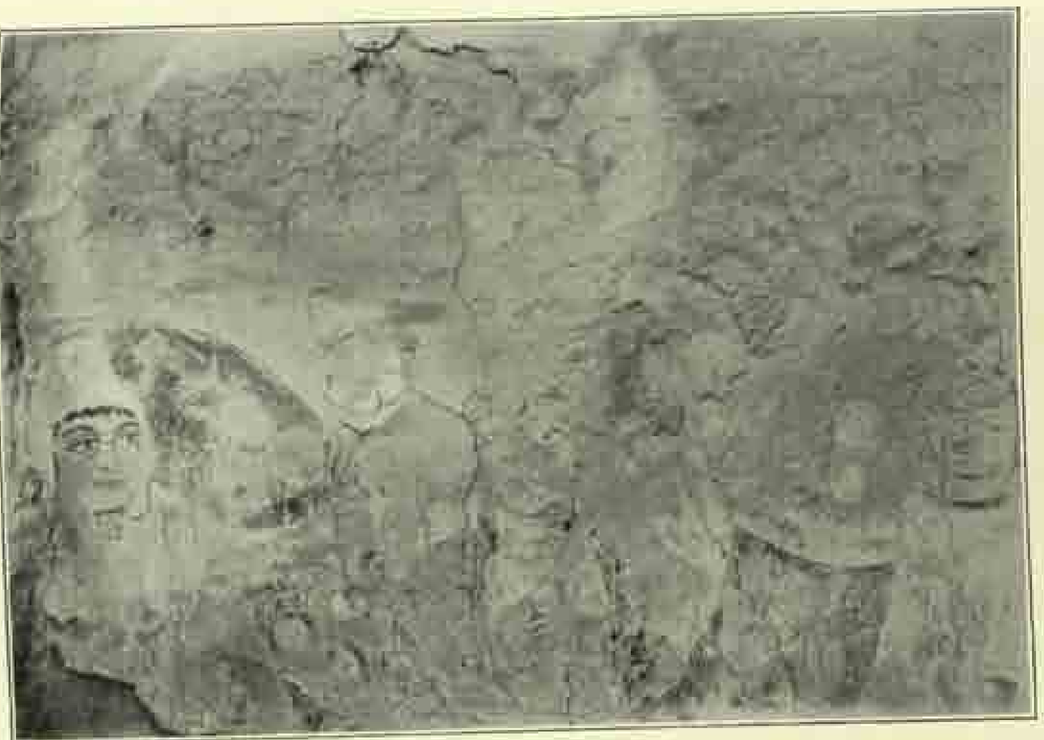
My surprise was therefore great when, returning now seven years later to the same place, I found a compact little village of more than a dozen large comfortable-looking homesteads established on the left bank of a well-marked broad river-bed and the area covered by continuous fields greatly extended. The houses, like those of Charkhlik, were all built with fairly substantial walls of mud-bricks; and timber from the dense Toghrak groves in the neighbourhood had been plentifully employed for posts and roofs (Fig. 126). There were plantations of young fruit trees behind most of the houses, and in the open central area of the little village there even stood an official rest-house (Fig. 124). With its single large room and walled-in court it afforded me comfortable shelter, doubly welcome against the icy blasts of the Lop winter. I had, in this thorough change, a striking illustration of the last phase in a process that during the last generation or two had been turning these semi-nomadic fishermen and hunters on the lower Tārīm into somewhat casual agriculturists. The final transfer of the settlement to Mīrān had taken place about 1911; it is strange that only two or three years before it occurred, regular brick-built dwellings had been constructed at Abdal, and these, on my subsequent passage through that place, I found deserted. In addition to the energetic colonizing activity of the last Amban, the one who had fallen a victim to the 'revolutionary' *coup* at Charkhlik, another influence that appears to have hastened the Lopliks' final migration to Mīrān was the fear of seeing the steady flow of immigrants into Charkhlik overflow before long into what they were anxious to claim as their own ancestral acres.

Irrigation resources at Mīrān.

That there was reason for this apprehension became clear when I learnt the amount of water available for irrigation from the river of Mīrān. Reliable information put its volume at fully 15 'Tāsh' or millstones at the time of the spring sowing. Though it would subsequently diminish until the melting of the high snows in the mountains began, the supply was said never to fall to less than three 'stones', while from June onwards the amount of *ak-su* was vastly in excess of what irrigation of the cultivable area could absorb. Notwithstanding the Lopliks' characteristic reserve it was acknowledged on all hands that the water-supply from the river of Mīrān was in excess of that available for the oasis of Charkhlik, and also that the present number of people holding land

[5] Cf. *Serindia*, i. pp. 324 sqq., 343 sqq.

[6] Cf. Hedin, *Reisen in Z.-A.*, pp. 106 sq.; also *Serindia*, i. Fig. 91.



112. PORTION OF PAINTED DADO ON NORTH-WEST WALL OF ROTUNDA PASSAGE IN SHRINE M. V, MĪRĀN SITE.

(Continued in Fig. 113.)



113. PORTION OF PAINTED DADO ON NORTH-WEST WALL OF ROTUNDA PASSAGE IN SHRINE M. V, MĪRĀN SITE.

(Continued in Fig. 114.)



114. PORTION OF PAINTED DADO ON NORTH WALL OF ROTUNDA PASSAGE IN SHRINE M. V, MĪRĀN SITE.

(Continued in Fig. 115.)



115. PORTION OF PAINTED DADO ON NORTH WALL OF ROTUNDA PASSAGE IN SHRINE M. V, MĪRĀN SITE.

(Continued from Fig. 114.)

at Mīrān was quite unequal to making full use of this water. Indeed Ibrāhīm Bēg, who from his prolonged experience as Mīrāb-bēg or 'canal superintendent' of the Chīra oasis and other places was a very competent authority on such matters, concluded from the data he had been able to gather that, given conditions of labour similar to those at Chīra, the irrigation supply obtainable from the Mīrān river would suffice for the maintenance of about 500 families. Yet the actual number of those cultivating at Mīrān at the time of my visit was put at 30 families, a figure that, even allowing for men absent with their flocks or on hunting trips, seemed, if anything, over-estimated.

Reoccupation of site of *Yü-ni*.

These facts will help us to understand better the importance that attaches to the ruined site to the east, in view of the surviving remains and of the Chinese historical notices relating to it. They give additional support to the identification of the site with *Yü-ni*, 扜泥, the capital of Lop region in Han times,[7] and at the same time supply us with a modern illustration of the successive periods of abandonment and reoccupation that the archaeological evidence obtained in the course of my explorations of 1907 had led me to assume.[8] These *peripeteias* of the old capital of 'Lou-lan or Shan-shan' have their exact parallel in those I have had occasion to discuss when treating in *Serindia* the history of the existing oases of Charchan, Vāsh-shahri and Charkhlik farther west. It was therefore a source of special satisfaction to me that my renewed visit to Mīrān allowed me to witness in person this process of resuscitation in the vicinity of that most remote of ancient sites along the old 'southern route' from Khotan to China.

Wall-paintings of shrine M. v.

What had irresistibly drawn me back to the ruins of Mīrān ever since I had left them to their solitude seven years earlier, was the thought of the fine paintings I had then been obliged to leave behind on the inner passage walls of the shrine M. v. The full description given of them in *Serindia*, together with the photographs reproduced there,[9] will explain the exceptional interest attaching to these remains of quasi-Hellenistic pictorial art discovered in a Buddhist shrine on the very confines of China. I have given an account, in the same work, of the serious technical difficulties that made it impossible for me on my first visit, with the means and time then at my disposal, to attempt their removal as a whole.[10] The subsequent effort in the spring of 1908 to save the mural paintings, which had been carefully re-buried, by sending Naik Rām Singh to remove them, was frustrated by the tragic fate which struck that faithful and capable assistant with blindness at this very place, while he was preparing for his task.[11]

Damage done since first visit to site.

According to the concordant statements of the Naik and Ibrāhīm Bēg, the painted wall surfaces had been found by them in 1908 exactly as when first brought to light, and had, before they left, been protected afresh by the complete filling in of the interior of the temple, as previously effected under my personal supervision. Unfortunately this safeguard, as I discovered at once on my renewed visit on January 17th, had failed to secure its object. In the southern hemicycle of the rotunda passage I found that the outer wall which had shown the fine fresco frieze with the representation of the Vessantara Jātaka story and, below it, the fascinating cycle of portraits set between festoon-carrying *amorini*, had been laid bare and the once painted plaster surface, where not broken off, had been completely effaced through exposure. The Lopliks of Mīrān asserted that this was the result of the operations carried out three years earlier by a Japanese traveller (obviously Mr. Tachibana), who coming from the direction of Turfān had spent a few days at the site and carried away with him to Tun-huang what fragments of painted plaster he succeeded in detaching. Judging from the large pieces of plaster still adhering to the wall but no longer retaining any traces of their

[7] See *Serindia*, i. pp. 326 sq., 333 sq.

[8] See *ibid.*, i. p. 338.

[9] See *ibid.*, i. pp. 516–29, Figs. 134–43.

[10] Cf. *ibid.*, i. pp. 532 sq.

[11] See *ibid.*, iii. p. 1317.

colouring, the portions removed—or destroyed—must have comprised mainly the central portion of the frieze as it survived in 1907 and has been described and reproduced in *Serindia*. In what condition the pieces detached reached their destination, and whether they have now been made accessible for study, I have not so far been able to ascertain.

Painted dado of N. hemicycle, M. v.

There were, unfortunately, various indications that the removal of these spoils must have been attended with much damage, owing to haste and perfunctory methods of work: among others, the fact that no attempt had anywhere been made to cut away the hard brick wall behind, without which, as experience gained in 1907 had shown, no safe removal of the brittle painted plaster was possible. There had been no systematic clearing of the circular passage of the shrine, the sand and earth with which it had been filled in again by us still lying undisturbed all round the Stūpa base. My regret was accordingly to some extent diminished when the first rapid examination showed that the dado of the northern hemicycle had remained untouched under the protecting cover then provided. The removal of the fresco panels thus fortunately preserved was started under my personal direction on the 20th of February after a fresh series of photographs (Figs. 112–15) had been taken of this hemicycle, under difficulties quite as great as those previously experienced and described in *Serindia*.[12]

Removal of surviving wall-paintings.

This removal proved a very delicate task, which greatly taxed the trained skill of Naik Shamsuddīn, assisted as he was by Afrāz-gul and myself, and the icy blasts from the north-east to which we were almost constantly exposed made the work particularly trying. The methods used in detaching the brittle panels of painted plaster and in subsequently strengthening them at the back and packing them safely for distant transport were essentially the same as those successfully employed in dealing with the frescoes of the shrine M. III on my former visit to the site.[13] But the peculiar composition of the plaster, which, as previously recorded, consisted in M. v of a smooth but very thin and exceedingly brittle outer layer and an inner one much softer and lacking in cohesion, necessitated here a very troublesome preliminary procedure.

Method of operation.

Before the successive panels of the dado, each showing a portrait or garland-carrying *putto*, could be safely detached in their turn with the help of special appliances duly prepared beforehand in the workshops of the 1st Sappers and Miners, it was necessary first to have the wall behind systematically cut away by a sort of sapping. The unusual hardness of the bricks, the rotten condition of the mud in which they were set, and the extreme brittleness of the plaster layers, only about an inch thick altogether, all combined to render the operation a very slow and delicate one (Fig. 110). The subsequent application of a canvas backing to the panels, a very necessary precaution, had to be carried out on the spot and was much retarded by the bitter cold, which kept the glue from drying in spite of the improvised shelter of a felt tent (Fig. 108). Finally the making of stout cases out of freshly cut tree trunks and the safe packing of the heavy bundles of plaster between thick layers of reeds needed prolonged labour (Fig. 125).

Thus it took fully twelve days' work at high pressure before, on the eve of my departure from Mīrān, the task of rescuing what was left of these fine remains of Buddhist pictorial art was finally completed. However much I must regret the loss caused by the circumstances which had prevented my undertaking that task immediately after my discovery of the frescoes, the experience now gained conclusively proved that I had then correctly gauged the technical difficulties involved and the time it would have taken to overcome them.

Previous record of Mīrān ruins.

A description of the frescoed dado in the northern arc, as seen by me on its first discovery, has been recorded in *Serindia*, and the addition of such details as closer examination under less trying conditions may reveal must wait until the whole of the panels, which at present are still

[12] Cf. *Serindia*, i. p. 532.

[13] For a description of them, see *Desert Cathay*, i. pp. 463 sqq.

resting in their cases, shall have been set up afresh for exhibition in our Museum at New Delhi. [The task has been safely accomplished in 1925, after these pages were written.] What supplementary data I was able to collect during my renewed visit to Mīrān concerning ruined structures previously noticed, such as M. IV, M. VIII and M. IX, have been embodied in the account I have given of the latter in *Serindia*.[14] Similarly the more detailed survey of the site which I now was able to make with the help of Miān Afrāz-gul has been fully utilized in the plan which Plate 29 of *Serindia* reproduces. But, apart from the structures already explored, my fresh stay at Mīrān enabled me to trace some ruins which, hidden away in the close-set tamarisk-cones to the north, had previously escaped me, and among them two which presented features of distinct interest.

Ruined shrine M. XIV.

On the first day after my arrival Tursun Ākhūn, an old Loplik, told me of a mound he had seen among the 'Donglik' or sand-cones to the north, and guided me to it from the ruin M. II. This small mound, M. XIV, was situated about 1¾ miles almost due north of the Tibetan fort M. I and at first sight looked very puzzling. Its height was about eight feet. Clearing soon showed that it contained the remains of a small rotunda with the central Stūpa base still standing to a height of about five feet, but the wall of the enclosing circular passage almost completely decayed on the western and southern sides (see Fig. 118; Pl. 9). The extant portion of the Stūpa base, all covered with stucco, showed a triple plinth below and a series of flat mouldings above, as seen in the elevation of Pl. 9. The width of the circumambulatory passage was only 4½ feet and that of the enclosing wall approximately 5 feet. The wall of the enclosing passage bore signs of having once been painted. The remaining traces were too faint to permit of any conclusion as to the subjects represented; but what survived of colours and outlines seemed to point to a style different from that of the mural paintings in M. III and M. V.

Finds in ruin M. XIV.

Among the small objects recovered in the course of the clearing were five small wooden tablets bearing Tibetan writing (Pl. CXXX), found on the north and north-west sides of the passage. These proved clearly that the small shrine, if not actually of contemporary construction, must in any case have remained accessible during the period (eighth–ninth century A.D.) when the Tibetan fort M. I was occupied.[15] The fact that the style of the Stūpa mouldings distinctly differs from that observed in the case of the Stūpas of M. III and M. V[16] seems also to indicate a later origin. The other objects found here and described in the List below comprise a specimen of gilt stucco, M. XIV. 01, evidently from some Buddhist image;[17] a turned wooden box, M. XIV. 02–3, with traces of lacquer ornamentation (Pl. XXI); several fragments of relief carvings in wood, M. XIV. 04–10 (Pl. XXI), of which one, M. XIV. 09, shows the familiar ornament of the four-petalled Gandhāra flower. The fact that a layer of reed-straw and sheep-dung was found embedded in the debris at a level of about five feet above the floor shows that this small ruin, too, like the remains near M. II[18] and elsewhere, had at some later time served as a herdsman's shelter.

Ruined tower M. XIII.

Another mound, M. XIII, reported to me by one of my Loplik diggers, was found amidst tamarisk-cones, both living and dead, about 1¼ mile to the north-east of M. XIV. It proved to be the ruin of a *P'ao-t'ai*-like tower (Fig. 120), closely corresponding in type to the tower M. XII visited by me in 1907, some two-thirds of a mile to the south.[19] It measured about 17 feet square at the base and rose to about 16 feet above the original ground level, which wind-erosion had here lowered by about 8 feet. The sun-dried bricks measured on the average 18" × 10" × 4½". The

[14] See *Serindia*, i. pp. 533 sq. For a photograph of the small ruin M. IX, situated on a typical erosion terrace, see now Fig. 117; for one of the large Stūpa base M. IV, see Fig. 116. Plans of both are shown in Pl. 9.

[15] Cf. *Serindia*, i. p. 474.

[16] See *ibid.*, iii. Pl. 32.

[17] A larger stucco fragment, with its straw core, certainly from a statue, but unrecognizable as to its character, is shown by the photograph, Fig. 118, in the foreground.

[18] Cf. *Serindia*, i. pp. 490 sq., 536.

[19] See *ibid.*, i. p. 537.

top of a tamarisk-cone close by afforded a distant view of an extensive belt of tamarisk-cones to the north and east and of a glittering line of *shōr* far away on the horizon where the terminal marshes of the dying Tārīm spread their salt wastes. It was an inexpressibly sad landscape, befitting this *Ultima Thule* of inhabited ground in the south of the Lop basin.

Ruined mound M. xv.

More interesting than this old watch-tower, but also fär more puzzling, was the ruin M. xv, to which I was guided by Niāz, one of the Lopliks of Mīrān, on January 18th. It lay about a mile to the north-east of M. v, amidst low tamarisk-cones and not far from the eastern edge of the riverine belt of vegetation,[20] and presented itself as a shapeless mound of sun-dried bricks mixed with hard lumps of clay (Fig. 119). Nowhere on the exposed slopes did first inspection show brickwork in proper horizontal alignment, nor was any found in the subsequent clearing, which took the best part of two days. The height of the mound was about 15 feet, and the masses of fallen masonry composing it proved closely compacted throughout.

Clearing of collapsed rotunda M. xv.

The first indication of a structural feature was secured when, at the eastern foot of the mound, we came upon a short segment of what obviously was the inner face of a circular wall. The surviving portion rose nowhere to more than two feet, and of the colours with which its surface had been painted there remained but faint traces. The original thickness of this wall, which I first took to have enclosed a circular passage, could not be determined either here or on the north-west, where I subsequently traced some scanty remains of its inner surface to a height of only 6–10 inches above the floor. But from the relative position of these two wall segments the diameter of the enclosed area could be roughly calculated as 19 feet 8 inches. That this circular wall had not formed the enclosure of a Stūpa, like those of M. III and M. v, but belonged to a round chapel or Vihāra sheltering large Buddhist images in stucco, became clear as the removal of the hard masses of debris proceeded. No trace was found of a Stūpa base, such as would certainly have survived the collapse of the enclosing wall and of the dome that once spanned the rotunda. But instead there came to light a series of stucco heads embedded in the debris and attesting the former existence of images which the masonry from wall and vaulting had completely crushed in its fall.

Sculptural remains recovered.

Thus from the south-west portion of the interior there were recovered the two heads, M. xv. 014, 017 (Pl. XX), probably of Buddhisattvas, both well modelled and retaining in part the colouring of the faces, notwithstanding the very friable condition of their plaster. On that side, too, was found the life-size head, M. xv. 015 (Pl. XIX), interesting on account of the unusual treatment of the eyes and the peculiar arrangement of the hair in heavy tresses festooned over the forehead. The two Buddha heads in relief, M. xv. 018, 019, somewhat over life-size, were found in the western portion of the mound, about three feet above the floor level, and near them the fragmentary grotesque head of a demon, M. xv. 013 (Pl. XX). The right half of the leg and body of a colossal seated Buddha was found close by, but broke when the heavy brickwork in which it was embedded was being removed. The treatment of the drapery of this torso closely resembled that seen in the colossal seated Buddhas, of which portions were discovered at M. II.[21] On the east the head of a colossal Buddha, badly broken, lay face downwards, so firmly wedged amidst the debris that it could not be removed except after complete demolition. The same was the case with the knees of a seated Buddha discovered in the very centre of the mound and at a height of some four feet above the floor.

Features of collapsed dome.

We searched in vain amidst the amorphous masses of brick and clay for indications of the original position of the images to which these fragments had belonged. That any remains at all of stucco sculptures should have escaped complete destruction must, in fact, seem surprising. From the condition in which the fallen masonry was found there could be little doubt that the enclosing

[20] See *Serindia*, iii. Pl. 29.

[21] See *ibid.*, i. p. 488, Figs. 123, 124.



116. REMAINS OF SHRINE M. IV, MĪRĀN SITE, SEEN FROM WEST.
(See *Serindia*, I, p. [illegible].)



117. RUINED STRUCTURE, M. IX, ON WIND-ERODED TERRACE, MĪRĀN SITE.
(See *Serindia*, I, p. [illegible].)



118. RUINED SHRINE, M. XIV, MĪRĀN SITE, AFTER EXCAVATION.



119. MOUND CONTAINING REMAINS OF COLLAPSED SHRINE, M. XV, MĪRĀN SITE.



120. RUINED TOWER, M. XIII, MĪRĀN SITE, SEEN FROM SOUTH.



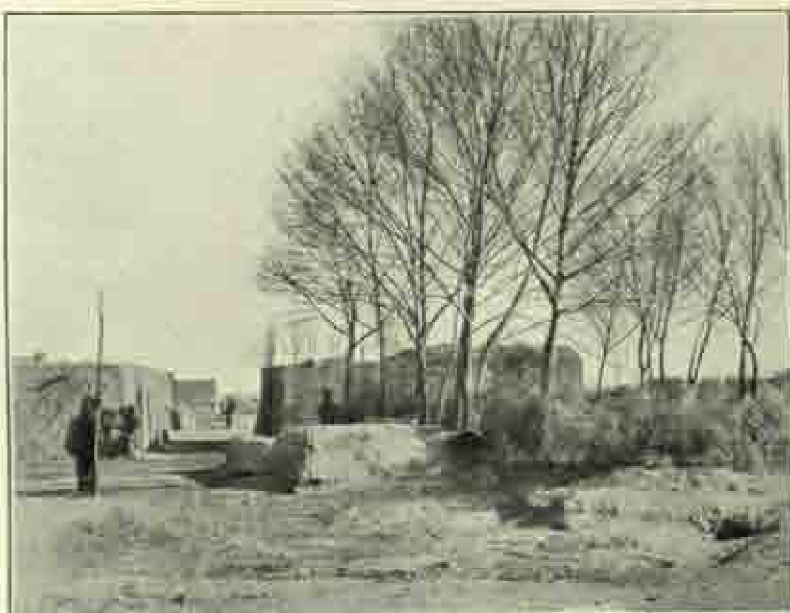
121. SHER 'ALĪ KHĀN, BAJAURĪ TRADER, WITH TWO TRAVEL COMPANIONS.



122. CAMELS BEING LOADED WITH ICE AT UZUN-KÖL.



123. ICE-LOADS OF CAMELS BEING DEPOSITED AT FORT L.K., LOP DESERT.



124. DWELLINGS IN NEW VILLAGE OF MĪRĀN.



125. MAKING OF CASES FOR FRESCO PANELS AT MĪRĀN.



126. NŪR MUHAMMAD, HEADMAN OF MĪRĀN, WITH SON, IN FRONT OF HIS HOUSE.



127. CONVOY WITH CASES OF MURAL PAINTINGS READY TO START FROM MĪRĀN.

(Naik 'Ali Khān with mail-bag on right.)

wall of the rotunda, together with the dome it had carried, must have collapsed inwardly. Besides bricks approximating in size to those used in M. III–V, there were found larger ones of oblong shape, up to 2 feet in length, and flat slabs of sun-dried clay of remarkable hardness, some of the latter showing raised margins. It occurred to me at the time that these large-sized bricks and slabs may have had their special use in the vaulting of the dome if the latter was constructed on the principle of corbelled horizontal courses. But a span of 19 or 20 feet, such as the ground-plan of the rotunda would lead us to assume, exceeds the maximum measurement attained by this early method of vaulting, as known to me from extant examples in India.[22] It only remains to add that the fragments of human bones, M. XV. 01–12, which were found near the east foot of the ruined mound, probably had their origin in some sepulchral deposits, such as were repeatedly found by me at the shrines of the 'Ming-oi' site near Shōrchuk.[23]

Dating of shrine M. XV.

The fragments of stucco sculpture above detailed and more fully described in the List below were the only relics of direct archaeological interest that the complete clearing of the ruined shrine yielded. Considering the very conservative character of Buddhist sculptural art as practised in the Tārīm basin, no conclusive chronological argument can be drawn from them. There is nothing in their style *a priori* to preclude the conjectural attribution of the shrine to the same period as that which a variety of indications have led me to assume for the ruined Vihāra of M. II explored in 1907, viz. the fifth century.[24] A somewhat later date may however also be considered as possible.

Prolonged occupation of northern area.

Judging from the evidence afforded by the ruined shrine M. XIV and its Tibetan records, as well as on general topographical grounds, I am inclined to believe that the area lying north of the bare gravel Sai on which stand the ruins explored in 1907 continued to be occupied longer than the latter. The abundance of tamarisk growth both on cones and on flat ground shows that this area is still reached by subsoil water, and this again explains the almost complete absence of wind-erosion to which otherwise the soft loess soil would readily lend itself. It appears probable that other vestiges of antiquity lie hidden amidst this confusing scrubby waste. But the Lopliks were unable—or unwilling—to show any more, in spite of generous rewards offered, and the manifold and urgent tasks that kept all of us fully occupied during our stay at Mīrān prevented a close and thorough search.

Preparations for desert explorations.

Simultaneously with the archaeological labours described, I had to push on preparations for the explorations which I intended our several parties to carry out in the waterless desert north and north-east of the present terminal marshes of the Tārīm. The scanty resources and evasive cunning of the Mīrān Lopliks rendered it difficult enough to make up the deficiencies of supplies and transport with which I had been obliged to leave Charkhlik. Everything connected with the proposed explorations depended on the strength of my transport column. Yet two weakly camels were all I had been able to add to it at Mīrān, while the ten hired animals brought from Keriya were manifestly unfit for prolonged work in the desert, and their owners, frightened by the prospect, were constantly clamouring for discharge and threatening to desert.

Threatened official obstruction.

But apart from these cares I had another source of serious anxiety during these days. Within a week of my arrival at Mīrān I received a letter from Sir George Macartney bringing grave news. From the head-quarters of the provincial Government at Urumchi an edict had issued ordering all district authorities to prevent us from carrying out any surveying work, and in case of any attempt to continue our explorations to arrest and send us under escort to Kāshgar 'for punishment under treaty'. There is no need to discuss the probable motives of this intended obstruction, or how far the alleged regulations by the General Staff of the Chinese Republic quoted in explanation

[22] Cf. my 'Report on an archaeological tour with Buner Field Force', *Indian Antiquary*, 1899, p. 36.

[23] See *Serindia*, iii. p. 1186.

[24] Cf. *ibid.*, i. pp. 491 sq.

could really be held to apply to exploratory work such as ours. The intercession of H.B.M.'s Minister at Peking had immediately been invoked from Kāshgar by my ever-watchful friend in a telegram sent over the Russian system via Irkeshtam. But it would be months before help from the distant capital could make itself felt. In the meantime I was faced by the prospect of having to contend, if not with an attempt at forcible interference, at any rate with Chinese passive obstruction easy enough to apply in my circumstances. I realized clearly how dangerous such obstruction would certainly be to my plans, particularly in view of the very limited period during which the cold of the winter renders work in the waterless desert possible.

Disquieting news from Kara-kum Ya-mên.

A copy of the edict arrived shortly after via Charkhlik from the Tungan Amban of Kara-kum. I had previously requested this official to furnish me with a Mongol interpreter in view of the explorations in the Etsin-gol region which I contemplated for the ensuing spring. Needless to say that an excuse for declining my request was conveniently provided by the enclosure. I could gauge the import of the edict and the vigour of its expression when I saw the sallow face of Li Ssŭ-yeh, my shrivelled Chinese Secretary—a poor substitute, alas! for ever zealous and plucky Chiang Ssŭ-yeh—turning a livid grey as he read through the document and explained it. Fortunately, ever taciturn and morose as he was, he could be trusted anyhow to keep the depressing information to himself.

Apprehension of local passive resistance.

Evening after evening as I came back from the day's work at the site I looked anxiously among the indolent Lopliks at the hamlet for the first signs of the passive resistance to my plans which their natural lethargic temperament would have made it so easy to practise. Yet the expected prohibition from Charkhlik never came. That I owed this lucky escape to the opportune 'revolutionary' outbreak became clear to me only later. It had disposed of the original district magistrate whose report on Lāl Singh's surveys as 'secret operations' had first supplied head-quarters with a pretext for their obstructive step, removing him before he could take any action. His bandit successor, who had found the orders when he installed himself at the Ya-mên and who, given time, might well have tried to curry favour at provincial head-quarters by showing zeal for their execution, had more urgent and profitable business to attend to before he was himself killed. Subsequently the military commandants, in strict compliance with Chinese official convention, had carefully abstained from looking into civil affairs and kept all official papers sealed up at the Ya-mên, until the new Amban should arrive from Urumchi. He did actually reach Charkhlik while I was still at Mīrān, but could not get access to the Ya-mên papers until he had formally taken charge of the seal of office. This the chief of the small force, a genial old warrior, whom I had met on his passage through Charkhlik, had for safety's sake taken along with him when, after attending to the execution of the last captured rebels, he had rapidly moved on towards Charchan; and thither, accordingly, the new *hsien-kuan* had himself been obliged to proceed.

Shēr 'Alī Khān's help with transport.

These latter circumstances, but imperfectly known to me at the time, had averted the direct obstruction I had such good reason to fear. But they also explain why the repeated and urgent appeals I addressed to Charkhlik for the indispensable camels remained utterly without effect. By great good fortune, help came at this juncture from a quarter whence I had the least reason to hope for it. The very day when Sir George Macartney's alarming message reached Mīrān, there arrived by the desert track from Tun-huang Shēr 'Alī Khān, the enterprising trader from Bajaor on the Indian North-west Frontier, whom I had met in 1907 at Tun-huang and whose readiness to convey to Kāshgar a mail for Europe had then been a welcome help to me.[23] Once again this hardy and intelligent Pathān (Fig. 111) was on one of his biennial journeys from distant Ssŭ-ch'ūan to Yārkand with a caravan of over forty camels carrying chiefly tea. My relief at

[23] See *Desert Cathay*, ii. p. 68.

his opportune appearance was all the greater for the disquieting news I had just received. As soon as he realized the seriousness of the transport problem before me, he offered to let a dozen of the camels he had hired from Tun-huang for Khotan be exchanged for the Charkhlik animals whose owners were clamouring to return. In addition he readily agreed to come back himself from Charkhlik, where his caravan was to halt, in order to take charge on animals of his own of the loads of antiques I was anxious to dispatch safely to Kāshgar before setting out for our desert explorations. Thus was solved the question of transporting our heavy baggage and stores to Tun-huang, as well as the fodder supply which our fourteen ponies would need on that long journey.

Lāl Singh's start for Kuruk-daryā.

But great difficulties still remained. I had assigned to Lāl Singh, who in spite of the hardships already undergone was eager to be as soon as possible at work again, the task of carrying out an exact survey of the ancient river-bed, the 'Kuruk-daryā' and its branches, by which the waters of the Konche-daryā once reached the area, now an absolute desert, south of the Kuruk-tāgh foot-hills. Through this had passed the earliest Chinese route into the Tārīm basin, as marked by the ruins of the Lou-lan Site. The latter, first discovered by Dr. Hedin in 1900 and explored by me in 1906, was to be our rendezvous. It was impossible to spare any of our own camels for Lāl Singh's trying journey, nor any of the hired animals I had managed to collect, even if the owners of these could have been trusted to face such an expedition. I was therefore obliged to let him start on January 23rd with hired ponies, and proceed northward by the Tārīm to Tikenlik; I hoped that he would there be able to pick up the camels I had bespoken four months before from Kāshgar, having asked Abdur-rahīm, the hardy hunter from Tikenlik and Lāl Singh's old guide in the Kuruk-tāgh, to hold them ready. No assurance had ever reached me that Abdur-rahīm had received my instructions, nor was I even sure as to his whereabouts, to say nothing of the worrying doubt whether official obstruction from Urumchi might not defeat the arrangement.

Survey task allotted to Muḥammad Yāqūb.

As regards Surveyor Muḥammad Yāqūb Khān, the question of his useful employment during our explorations in the Lop Desert was complicated not merely by difficulties of transport but also by other considerations. I had originally planned that he should carry a survey round the easternmost limits of the present marshes of the Kara-koshun, where the salt wastes of the ancient but now dried-up Lop Sea adjoin the 'Lop-nōr' of the maps, and thence explore the north-east shores of the former to about the latitude of the Lou-lan Site, where he would have rejoined me. This programme, which presented considerable geographical interest, had, to my great regret, to be abandoned. On the one hand it was found impossible to provide Muḥammad Yāqūb's little party with enough camels to carry sufficient ice for at least three weeks' work in an unexplored and waterless desert. On the other hand experience during our journey had convinced me that the Surveyor, however willing and brave by nature, could not be employed on an independent task of this kind without serious risk to his own and his party's safety. So I decided instead to send him with five camels by the desert track leading along the southern shore of the great salt-encrusted sea basin to a point near Kum-kuduk (Map No. 32. D. 4) where on my previous journey we had approximately located the easternmost extension of the ancient Lop Sea. Thence he was to carry a line of exact levelling towards the termination of the Su-lo-ho drainage with a view to determining the geographical relation of the latter to the terminal basin of the Tārīm more definitely than had previously been possible.

Programme of proposed explorations.

Among the tasks I had planned as my own the chief were the excavation of any ancient remains that the intended exploration of the dried-up delta of the 'Kuruk-daryā' might reveal, and the search for, and exact determination of, the ancient Chinese route once leading from the Lou-lan Site eastwards to the terminal point of the old border wall west of Tun-huang. In order to assure adequate time for the latter rather hazardous task and for the survey of the unexplored northern

and north-eastern portions of the great salt-encrusted sea-bed, which I had reason to assume that ancient route must have passed through or skirted, it was essential to effect excavations rapidly, and therefore to take along as many labourers as I could possibly manage to keep supplied with water.

Arrangements for transport in Lop Desert.

The thirty camels I had succeeded in collecting were by no means too many for the large amount of stores and baggage to be carried. We had to take sufficient ice to assure minimum allowances of water for thirty-five people for at least one month, and food supplies for one month for all, and for an additional month for my own people; in addition to this there was the outfit of furs, felts, &c., required to afford protection against the icy blasts of the wintry desert, and the silver, photographic plates and other stores, which I could not risk to part with. Apart from our own fine beasts, I had few camels likely to prove equal to prolonged exertions in an absolute desert, offering neither food nor water. It was accordingly clear that the loads of the others would have to be kept light, and that the labourers would have to help to carry the remaining baggage. It goes without saying that everybody was expected to walk.

It was a great relief when, on January 31st, all that was needed for the move was safely collected. On the same day the safe packing of the recovered mural paintings was completed and their convoy was ready to start for the long journey westwards (Fig. 127). But what cheered me most was the prospect of soon reaching that forbidding waterless desert where I should feel myself completely protected from any risk of human interference, and where fascinating problems, both antiquarian and geographical, held out the promise of ample reward for such difficulties and risks as nature might place in my way.

LIST OF OBJECTS FOUND OR EXCAVATED AT RUINS OF MĪRĀN SITE

M. III–VI. 01–9. Nine frs. of pottery; coarse red unglazed. *01* and *05* of red clay, burnt black, full of white grit; *02* covered with thin slip. All sand-eroded. Average thickness ⅜", gr. fr. 3¾" × 3½", smallest 2" × 1¼".

M. IV. 01–2. Two long oviform glass pendants (found embedded in masonry); opaque, solid, cobalt tinted. Sides ribbed vertically. Ball-shaped heads, drilled for thread, broken. General form recalls the Greek oviform miniature vases of gold used as pendants on necklets.

Colouring matter prob. copper oxide. Surface oxydized to pale turquoise tint. Exposed parts abraded and colourless. For similar pendant, see *Ser.* iv. Pl. XXIX, N. XXIX. 005. Length (*01*) 1⅝", (*02*) 1 1/16", gr. diam. ⅜". Pl. XXIV.

M. V. 01. Wooden boss in form of truncated cone, with slightly raised centre on upper surface. Pierced through axis with iron pin. May have been lotus-pedestal, or (reversed) attachment for pendant. For similar bosses from same ruin, see *Ser.* i. p. 546, M. V. 009–10; iv. Pl. XLVII, M. V. 006. Diam. of base 4", of top 2¾", of raised centre 1¾", h. 1½". Pl. XXVII.

M. XIV. 01. Stucco relief fr., rounded, prob. from Buddha fig. Surface gilded, but sand-encrusted. Mud backing. 5¼" × 3¼" × (gr. thickness) 1¼".

M. XIV. 02–3. Turned wooden box, with lid (box *02*, lid *03*). Plain, circular; lid slightly conical; top edge of box rebated to take lid, closely fitting. Remains of black lacquer over sides and lid, with pattern in yellow and grey now hardly distinguishable.

Pattern on lid seems to consist of six-pointed star or flower radiating from apex, each point ending in palmette with central semi-oviform pistil. Between points, and also radiating from apex, six oblong labels in yellow outline, barred transversely with the same colour, and reaching half-way down sides of cone. On sides of box, top and bottom, thin annular lines in white and black, with festoon (?) band between. Part of side, and of lid, lost. Diam. 4", gr. h. 2". Pl. XXI.

M. XIV. 04–6. Three frs. of wooden relief carving; oblong, slightly convex laterally; broken at lower ends; upper ends (of *05*, *06*) intact, rounded. Carved in form of round-headed five-leaved plume or palmette, having half-elliptical centre and bound below by two transverse bands, with band of nail-head orn. between. *06* covered with remains of white priming and pink paint; *04* broken off short above bands. Backs of all worm-eaten. Length (*05* and *06*) 3", width 2", thickness *c.* ⅜". Pl. XXI.

M. XIV. 07–9. Three frs. of wooden relief carving: *07* and *09* (joining) show part of carved band, slightly warped with return piece along one long edge; other long edge broken; *08* prob. from return, uncarved.

Pattern of carved face: a simple sq. meander made of line of nail-head orn. between two plain mouldings, with large sq. four-petalled rosettes filling hollows. Remains

of white priming on face. Rotted behind. Length $7\frac{1}{4}''$, width $1\frac{1}{4}''$, return (broken off) gr. m. $\frac{3}{8}''$. Pl. XXI.

M. xiv. 010. Fr. of wooden relief carving, prob. belonging to same object as M. xiv. 07–9. Consists chiefly of plain return edge, with fr. only of carved face showing bit of curved band of nail-head orn. within plain curved moulding. Priming in front; rotted behind, as preceding. Length $2\frac{1}{4}''$, width $\frac{7}{8}''$, return $\frac{5}{8}''$.

M. xv. 01–12. Twelve frs. of human bone. *01*, complete, prob. tarsal, $1\frac{1}{4}'' \times 1\frac{1}{2}'' \times \frac{7}{8}''$; *03*, prob. head of radius. Length $\frac{7}{8}''$, gr. diam. $\frac{5}{8}''$. Remainder, frs. of shafts of long bones; 03 joining 012, and 06 joining 09. Latter very thick and of fine texture, with clean-cut section at one edge. Gr. length (*010*) $3\frac{13}{16}''$.

M. xv. 013. Fr. of stucco relief head, of demon. Full eye, flat nose; wrinkled, wide grinning mouth with strongly marked curved wrinkles at corner; projecting upper lip, and remains of teeth displayed. Above brow, chin and whole of L. side broken away. Face painted pink, eye and lip red. Material, clay; very friable. H. $5\frac{1}{4}''$, gr. width $4\frac{1}{4}''$ (incomplete). Pl. XX.

M. xv. 014. Stucco relief head; probably of Bodhisattva, somewhat under life-size. Long and narrow face with small nose and mouth, and large elongated, dreamy eyes. Hair loosely coiled above head, and falling in waving curtain down temples and over tops of ears to back, with small curl in front of ear. Double chin.

Modelling very crisp and stylistic. Eyebrows sharply defined in modelling and arched in semicircular curve. Orbicular line marking sharply upper and lower limits of eyelids. Wing of nose sharply defined; lips beautifully formed.

Deep depressions at angles of mouth and nostrils. R. ear broken at lobe; L. ear and side of head missing; neck and surface of R. cheek broken away. White or pale pink wash over face. Very friable clay. H. (chin to root of hair) $5''$, h. of whole $8\frac{1}{4}''$, width across temples *c.* $4''$, gr. relief $5\frac{1}{2}''$. Pl. XX.

M. xv. 015. Stucco relief head, almost in the round; probably Bodhisattva life-size. Finely modelled, and akin in style to the preceding. Vigorous treatment of eyes, the inner angles of which incline inwards and downwards; eyebrows well separated. Nostrils very narrow. Mouth small, sharply modelled, and with corners rather dropped. Face round at lower part, and under chin very full. Hair in heavy tresses, curtained over forehead, and with three tresses looping down each side; ears covered. No orns. Part of neck preserved, but broken away. Broken and very brittle. Chin to crown $8\frac{1}{2}''$, length with fr. of neck $1'$, gr. width $7\frac{1}{2}''$. Pl. XIX.

M. xv. 016. Stucco relief fr., of arm with armlet. The latter consists of raised band studded with projecting round jewels, and below this a larger round rosette with fine curved guttae, points outward whirling round central boss and pearl inside curve of each gutta. Two pearls lost. $2\frac{1}{4}'' \times 2\frac{1}{4}''$. Pl. XXI.

M. xv. 017. Stucco relief head, probably of Bodhisattva, life size. Treatment similar to M. xv. 014, but ears, top, and back of head with whole of hair missing. Brow crowned with Mukuṭa composed of sq. jewels, each made of four petals round circular centre. Two of these are present, separated by about $1''$ space which is furnished by two leaf-shaped jewels upward inclined.

Face painted flesh colour, with contours red; eyebrows, thin moustache, and iris of eyes black; lips vivid vermilion. Double chin shown by groove. Surface very friable. H. $8\frac{1}{4}''$, gr. width *c.* $5''$, gr. relief *c.* $4''$. Pl. XX.

M. xv. 018. Fr. of stucco relief head of Buddha, rather more than life-size. Chin, ears, and whole top of head gone. Eyebrows sloping well up from Tilaka mark. Eyes elongated and nearly closed. Mouth rather projecting, and smiling. Traces of red and pale flesh colour, but surface much destroyed. Friable. H. $6\frac{1}{4}''$, gr. width $6\frac{3}{4}''$.

M. xv. 019. Stucco relief head of Buddha similar to M. xv. 018, but top of head remains, with hair done in semicircular rows of crescent-shaped curls behind whorl of curls over forehead. Hair blue. All below upper lip gone. H. (incomplete) $8''$, gr. width $6''$, gr. relief *c.* $4\frac{1}{4}''$.

M. xv. 020. Fr. of stucco relief head, of old man. Heavy wrinkles across forehead; half-closed eyes. Nose and all lower part of face broken away. Colour, pink with contours and black eyebrows. Very friable. $5\frac{1}{4}'' \times 7''$.

CHAPTER VI

REMAINS OF AN ANCIENT DELTA

Section I.—THE RUINED FORT OF L.K.

Departure from Mīrān.

On the morning of February 1st I was at last able to start my large column on its way north-eastward. To my great relief freedom and time to execute my plans now seemed assured. The easy-going indolent Lopliks of Mīrān were also, no doubt, relieved at our departure. But their broad honest faces reflected only kindness when they wished us farewell with the customary shouts of *Yol bolsun* (' May there be a way ').

All baggage that could possibly be spared was left behind in charge of two of my men, and with it also Li Ssŭ-yeh, whose weakly constitution made it impossible for him to face the hardships of desert exploration. While at Mīrān, I had offered him his discharge with a liberal allowance for his return journey to the flesh-pots of Kāshgar; but he would not accept it, *auri sacra fames* being, I fear, the prevailing motive. The task of conveying him safely along the desert track to Tun-huang still remained, and subsequently fell to the faithful Ibrāhīm Bēg, much to his chagrin. When sent back for this purpose from the Lou-lan Site, he gravely asked for instructions as to what he should do with Li Ssŭ-yeh's body if he died, as seemed to him likely, on that troublesome journey.

Tokhta Ākhūn's reconnaissance.

My immediate goal was a large ruined fort which Tokhta Ākhūn, my old Loplik follower, had first sighted from a distance in the spring of 1910, when he returned to Abdal from the Lou-lan Site after guiding Mr. Tachibana, the young Japanese explorer, to that place. Pressed for time as the party were owing to want of water, they had not stopped to examine the remains. So as soon as I heard of it on my arrival at Mīrān, I sent out Tokhta Ākhūn to ascertain the exact position of the ruin and to bring me back information about its character. Tokhta Ākhūn returned from his search having with the unfailing local sense of the hunter succeeded in finding the ruin notwithstanding the very deceptive character of the wind-eroded desert around it. His description of the site, supported by miscellaneous small objects, including two Han coins, that he had picked up near the ruin, left no doubt about its antiquity, and the rough sketch with which he accompanied his report showed clearly that it could best be explored from the route I had followed on my first visit to the Lou-lan Site. So by that route our fresh start was now made.

March along dying Tārīm.

Our first march, by the track already twice followed in 1906–7, brought us to Abdal on the Tārīm (Map No. 30. B. 1). The change, as already briefly mentioned,[1] which had since come over the quondam ' capital of Lop-nōr ' was indicated by a row of brick-built houses all now completely deserted but one, where Tokhta Ākhūn, the hunter, once again acting as my guide, offered comfortable shelter. Next morning we crossed the terminal bed of the Tārīm, measuring 48 yards across and frozen hard at the time. As we followed the well-marked track, leading at first along the left bank in the direction of Kum-chapgan, we came upon a reach where the river, still confined to a single bed, was clear of ice. It was here 45 yards wide and flowed with a current of 50 yards in 140 seconds. Its depth, as at Abdal, was stated to be very great. And yet the river was said to have completely dried up during the preceding summer, with the exception of deep pools such as the bed appears to contain at this and other points. Such an event was not remembered to have happened

[1] Cf. above, p. 170.

before. Its occurrence was believed by the Lopliks to have been caused by the recent construction of a big *tugh* or weir on the Tārīm above Tikenlik, intended to fill a large reservoir which was to assure irrigation to a new area of cultivation at that colony (Map No. 25. c. 3). On the other hand Tokhta Ākhūn remembered a big summer flood about 1892, which reached the terminal course of the Tārīm, when all the grazing grounds to the west of the chain of terminal lagoons known as Yangi-su and Kakmak-chash (Map No. 30. c. 1) were inundated and the sheet of flood water extended for a day's journey beyond Chainut-köl.

Alternate periods of inundation from Tārīm.

Our observations on that day and on the following two marches clearly proved that the process of drying up which I had noted when traversing this ground in December, 1906, had continued since. I need not refer here in detail to the significance of this process, as the general conclusions to be drawn from it have already been indicated in *Serindia*.[2] Nor do I propose to discuss here the bearing which these alternating periods of extended inundation and drying-up, as observed in this marginal area of lagoons formed by the drying Tārīm, may have upon the question of the shifting of the area of these terminal marsh beds as a whole. In the present publication I must be content with a record of physical facts actually observed and with the interpretation of them only to the extent that they affect questions of direct topographical or antiquarian interest.[2a] The examination of those facts in their wider geographical bearing would demand close analysis of the observations made by others, especially Dr. Hedin, on the same or neighbouring ground, and the study of parallel phenomena over other parts of the globe. It is a task that, in spite of its appeal to my interest in geographical problems, I am obliged for various reasons to leave to another occasion or to more competent hands.

Across dried-up depressions.

At the close of the first march from Abdal we passed our old camping place of 1906 near Ālam-khōja-köl (Map No. 30. c. 1); finding this depression now quite dry, we had to move about a mile and a half to the east in order to find a lagoon, the Uzun-köl, containing ice (Fig. 122),[3] and here we took up our water-supply. Thick slabs of solid fresh-tasting ice were cut overnight, and packed in stout woollen bags, and nineteen of our camels were loaded with them in the morning. The day's route leading to Chainut-köl lay for the most part from two to four miles east of that followed in 1906, as numerous depressions which then held swamps or open sheets of water were now dry and could be crossed without trouble. All these depressions showed channels connecting them with the Kakmak-chash line of lagoons eastwards, and these channels, as Tokhta Ākhūn explained and Afrāz-gul's observation eleven months later confirmed, still received water each spring, though the volume had greatly decreased.

Formation of cakes of salt-crust.

The *shōr* or salt incrustation covering the bottom of these depressions was thin. My attention was therefore specially attracted, on regaining our old route near Camp 119 of 1906, to a small basin entirely covered with big cakes of hard salt, usually polygonal in shape and upheaved at the edges, exactly like those I had often noticed when marching along the south shore of the dry bed of the ancient Lop Sea. According to Tokhta Ākhūn the peculiar formation of the salt-crust in this and similar isolated basins was due to water oozing out from the bottom of them when the lagoons farther south are reached by flood water. In view of the vast extent of the ground over which we became subsequently only too familiar with this peculiar form of salt-crust in the great Lop depression, Tokhta Ākhūn's observation may deserve passing notice. The Chainut-köl lagoon, which we reached that evening and which in December, 1906, still showed a large sheet of salty water,

[2] See *Serindia*, i. pp. 352 sq.

[2a] [The special map of the Lop Desert prepared by me on the scale of 1 : 250,000 for eventual issue with the present work will, I hope, help to illustrate those facts more clearly.]

[3] Through a slight error of compilation Map No. 30. c. 1 shows the symbol for our Camp LXXXVIII of 1914 in the same place as Camp 118 of 1906. It ought to be shifted to the point marked by the entry *Uzun-köl*.

was now completely dry. But a deep hollow near its northern end, where we encamped and where before we had found a pool with water drinkable for animals, still held ice tasting slightly brackish. When in March, 1915, Afrāz-gul returned to the Chainut-kōl from the north, he saw its basin being filled again by flood water running in numerous channels from the side of the Kakmak-chash lagoons.

Drying up of *Yangi-kōl*.

On the exceptionally clear but bitterly cold morning of February 4th, standing on the summit of a conspicuous tamarisk-cone near our camp, I could discern far away to the south the outermost range of the Āltin-tāgh and thus fix our position on the plane-table by some peaks to the west of Bāsh-kurghān that Lāl Singh had triangulated in the autumn. The day's march, lying over ground easy for the camels, was a long one and led straight to the north-east along a line which was practically the same as that followed in 1906 between Camps 119 and 121. The physical features observed on this ground have been fully described by me in *Serindia*,[4] partly from the notes taken on my second passage. I may therefore restrict my remarks here to such changes as struck me after the seven years' interval. They were mainly the result of the complete drying up of the Yangi-kōl depression which Dr. Hedin in 1900 and 1901 had seen occupied by an extensive system of lagoons. In 1906 some low-lying portions of this area still retained numerous small lakes and pools filled with salt water; but now the beds of all these were found quite dry, except for boggy patches here and there and a few small pools between the basins of Tokhta-Ākhūn-ku-atkan-kōl (a name given in honour of our hunter-guide) and the Juduk-kōl (Map No. 30. c. 1). Their water was so briny that no ice would form on them.

Progress of tamarisk growth and of wind-erosion.

Round the largest of all these dry basins farther north, the Kurbān-kullu-kōl, I noticed a regular fringe of tamarisk-cones almost all dead, marking an old shore-line that had probably been maintained for a long period. In 1906 the interior of the basin was found quite bare of vegetation. But now prolonged dryness had allowed young tamarisks to take root round patches still retaining subsoil moisture, and if these tamarisks survived they would in time grow to form a fresh but much smaller ring of cones. Beyond this basin the route passed first among a belt of small tamarisk-cones, all living; then among rudimentary dunes and then on to ground showing, as already described,[5] the effects of wind-erosion, but manifestly of comparatively recent date. Large patches of the surface were found here still protected by closely matted stalks of dead reeds, all laid flat in the prevailing wind direction from ENE. to WSW. Wherever this covering had been blown off, the bare clay below was cut up by shallow Yārdang trenches all running with precisely the above bearing, as they do over the whole of this desert area. That none of these trenches were cut deeper than 3 to 4 feet sufficiently proves that wind-erosion on this ground, close to the northern edge of the Tārīm terminal basin as we know it, is not likely to have been at work for more than a few centuries.

Wind-eroded depressions reached by water.

Fully in keeping with this was the curious fact that in the midst of this desiccated ground now exposed to wind-erosion there were patches of living reeds occupying small depressions. The most probable explanation is that on the occurrence of exceptionally high floods in the Tārīm, water penetrates into wind-eroded depressions of this transitional belt between the true marginal area of the Tārīm delta and the utterly barren desert to the north, once watered by the delta of the Kuruk-daryā. A similar explanation may account for the young tamarisks that we found here growing abundantly on small cones, only 2 to 4 feet high, on level ground within what looked like small wind-eroded basins without any trace of recent moisture. The fact that the direction of these small depressions containing living vegetation coincided roughly with the SW.–NE. bearing of our route supports the above explanation of their origin and incidentally helped to facilitate our progress.

[4] Cf. *Serindia*, i. pp. 352 sq.

[5] See *ibid.*, i. p. 353.

Beyond a lake basin of some length (Map No. 29. c. 4), which still retained evidence of recent inundation in the form of small moist patches, we reached a strip of ground where beds of living reeds and thorny scrub stretched for some distance below a line of high tamarisk-cones. Tokhta Ākhūn had previously marked this spot as the last where our camels could find some scanty grazing, and there we halted for the night, having covered some 18 miles on the march.

Desert viewed from C. xc.

On the morning of February 5th I ascended a tamarisk-cone, fully 40 feet high and still showing live growth on the top, close to where our Camp xc stood, and from it with the binocular I made out, far away to the NNE., the ruined fort, L.K., which Tokhta Ākhūn pointed out as the place he had visited. To the west there extended unbroken an area of high dunes, the same, no doubt, that I had crossed in January, 1907, on my march from the Lou-lan Site to the Tārīm. To the north there lay before me an utterly desolate landscape of the type I remembered well around the ruins of Lou-lan. The flat expanse of bare clay, cut up by wind-erosion, was only broken here and there by a few scattered cones with dead tamarisks, and at rare intervals by strips of light drift-sand where lines of dead Toghraks lay fallen in rows.

First ancient bed.

We passed the first of these rows of dead trees, clearly suggesting the vicinity of an ancient bed with running water, within half a mile of our camp. Here a salt-encrusted depression marked the last living vegetation. Beyond it the ground became greatly eroded with Yārdangs big and small, in the midst of which was a long winding depression holding near its centre a small salt pool.[6] It was manifestly a part of the last dry lake-bed we had crossed in 1906 south of Camp 121, and the little pool was the last shrunk remnant of those which we had then found there.[7] From a dead tamarisk-cone near the northern end of this bed the ruined fort L.K. to the north now became clearly visible at a direct distance of only three miles, and to the WNW. of it another smaller ruin the existence of which Tokhta Ākhūn had discovered on his recent reconnaissance.

Moist soil in wind-eroded hollow.

More than a mile from the same point our route passed a curious wind-eroded hollow fully 25 feet deep, with its bottom moist and showing salt efflorescence. It illustrated in a striking manner how subsoil water from depressions farther south, to which an exceptional flood from the Tārīm had extended, might percolate to ground that, owing to its total want of moisture, had for many centuries been subject to wind-erosion. The observation was of interest as showing that in this area a belt of depressed ground, such as Dr. Hedin's levelling had shown south of the Lou-lan Site, does not necessarily mark an old lake-bed, but may be the result of long-continued wind-erosion.

First finds of stone age relics.

We were still about two miles and a half from the ruin L.K., for which we were steering, when relics of the stone age were first met with on the wind-eroded soil. They were miscellaneous small pieces of worked stone (L.K. 073–8, 0130), and were very soon followed by abundant further fragments of stone, together with remains of coarse pottery, all of the same type as those found seven years earlier on our first march over eroded ground beyond Camp 121.[8] As the position of the latter lies about three miles to the east of L.K., these finds afforded conclusive proof that the whole belt of ground here was occupied by man during some period or periods of the stone age. The various stone remains picked up on our approach to the site of L.K. will be found briefly described in the List below (L.K. 085, 0111–12, 0117–20, 0127–30, 0135–54, 0155–62), but have not yet undergone expert examination as to material and make, such as Mr. Reginald Smith has bestowed

[6] In Map No. 29. c. 4 Yārdang symbols ought to have been shown on both sides of route beyond the 'dry lake' NW. of C. xc.

A small correction is needed also in the route leading to the ruined fort L.K., which diverged from that followed in 1906 near the southern end of the second 'dry lake' shown in the map, and led straight on to it instead of making a curve.

[7] See *Serindia*, v. Map No. 60. c. 4.

[8] See *ibid.*, i, pp. 356 sq.

on the stone finds of 1906 from the corresponding area.[9] I must therefore confine myself for the present to pointing out that apart from flakes and chips undoubtedly struck off by man but not offering evidence of having been utilized, they comprise cores (L.K. 0112, 0117) clearly proving local manufacture of stone implements; rough celts, like L.K. 0127–9, 0161–2, possibly palaeolithic; two-edged 'knife-blades', like L.K. 0119–20, 0147, 0150, 0153, which survived from palaeolithic into neolithic times; as well as at least one well-finished arrow-head (L.K. 0111) which is undoubtedly neolithic.

Metal finds near old river-bed.

In close vicinity to the place where we had come upon the first stone remains, there was picked up under my eyes an excellently preserved Chinese coin of the *Wu-chu* type. It alone would have sufficed to prove the correctness of the conclusion I had already drawn in 1906 from the discovery of a single bronze arrow-head of Han type about four and a half miles from Camp 121, that this ground had been visited by man in the first centuries of our era.[10] Farther on small fragments of bronze and iron implements (L.K. 080–4, Pl. XXIII, XXIV), as well as of glass, afforded confirmatory evidence of traffic or occupation in historical times. Within about a mile of the ruined fort, we struck a broad well-defined bed marked by rows of thick Toghrak trunks, all dead but some still standing upright, on both banks. It was the bed that Tokhta Ākhūn had rightly recognized as an 'ancient river' and shown accordingly in the sketch he had brought back from his visit to the site. The old river-bed could be clearly made out as coming from the north-west and winding away from the point where we crossed it towards the east-south-east.[11] On the ground separating it from the ruined fort pieces of broken pottery and of slag became more frequent than stone remains, and with them were mingled small fragments of bronze and iron, and abundant pieces of glass.

Ruin of ancient fort, L.K.

The ground above which rose the fort was cut up by Yārdang trenches and in places scooped out into deep hollows (Fig. 130). Notwithstanding the frightful havoc that the ramparts had in most parts suffered, the ruins showed up boldly. As seen in the plan (Pl. 10), the fort was built in the form of a slightly irregular oblong with its corners roughly orientated towards the cardinal points. Its longer sides facing north-east and south-west measured approximately 620 feet and the shorter ones about 330 feet. Though built very massively in the fashion to be presently described, the circumvallation had been badly breached by wind-erosion, as is well seen in the panoramic view (Fig. 133) of the interior taken from near the north corner. Owing, perhaps, to the accumulation of drift-sand heaped up by the prevailing winds, longer wall portions had survived on the north-western and north-eastern sides than elsewhere. But even there the corners had suffered badly, and had been almost completely eroded to the west and south.

Effects of wind-erosion on ruin.

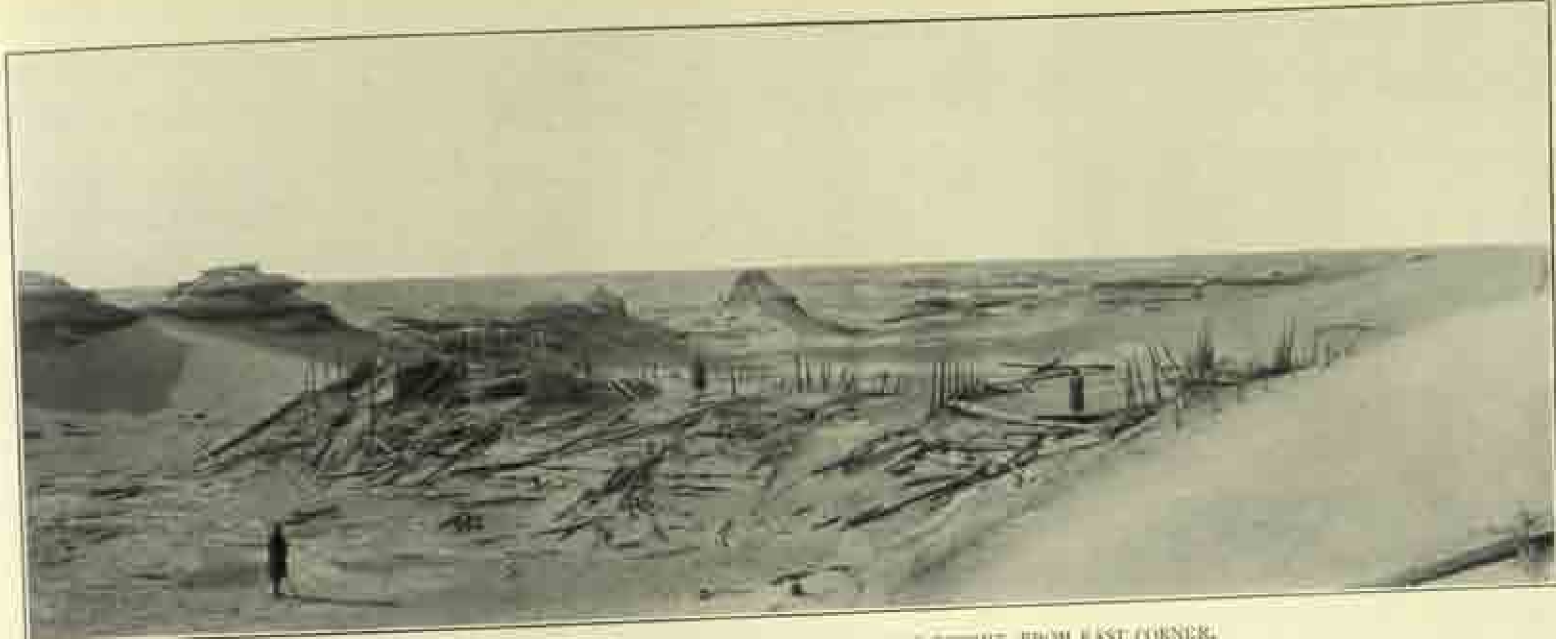
The surviving sections of the south-west face, being for the most part clear of drift-sand on the inside, showed better than the other faces the manner in which the circumvallation was constructed. Though the materials used were rough, the construction of the ramparts was remarkably solid, and this alone explains how they could withstand the continuous onsets of that most destructive of forces in this region, wind-erosion. Its power on this ground was demonstrated by the depth,

[9] Cf. R. A. Smith, 'The Stone Age in Chinese Turkestan', in *Man*, xi. pp. 81 sqq. [But see now his remarks in App. *N*.]

[10] Cf. *Desert Cathay*, i. p. 366; *Serindia*, i. p. 358.

[11] Here as in other parts of the wind-eroded desert south of the latitude of the Lou-lan Site the Map No. 29 indicates the position and bearing of ancient beds of the Kuruk-daryā delta merely by rows of the symbols marking the riverine strips of Toghrak jungle. The lines of dead trees could ordinarily be discerned with certainty for greater distances than the actual bed and were entered by me accordingly on the plane-table at the time with their exact bearings. Where the elevated position of our fixing or other facilities of the ground permitted the actual depression of the old bed to be followed clearly by the eye for some distance, a continuous or broken line in black has been added on the map.

The indication of ancient river-beds north of the Lou-lan Site has been taken as marked in the original plane-table sheet prepared by R. B. Lāl Singh, who, as a surveyor of long and varied experience and wholly unconcerned in geographical problems of a quasi-antiquarian bearing, could be trusted to record only what struck him at the time as plain topographical facts.



128. VIEW ACROSS INTERIOR OF RUINED FORT L.K., LOP DESERT, FROM EAST CORNER.



129. SECTIONS OF SOUTH-WESTERN RAMPART, BREACHED BY WIND-EROSION, OF FORT L.K., LOP DESERT.



130. WIND-ERODED GROUND OUTSIDE SOUTH-WEST FACE OF FORT L.K., LOP DESERT.

25 feet below the original level, to which it had scooped out portions of the interior of the fort, and by the hollows eroded to nearly the same depth outside the walls. The constructive methods used were clearly intended to guard against wind-erosion, and suggest intelligent adaptation of those I had first met with in the ancient border wall west of Tun-huang. The photograph of the southern portion of the south-west face reproduced in Fig. 129, together with the sectional sketch in Pl. 10, will help to illustrate them.

Construction of fort walls.

The wall was built throughout of alternating thick layers of clay and of Toghrak trunks and branches laid crosswise to the direction of its line. These layers successively diminished in width as they rose higher and higher, thus giving the wall a pronounced slope inward both within and without, and greatly increasing its stability. The lowest layer, forming a kind of foundation, consisted of big Toghrak pieces placed probably on the original ground level; this had a total width of 32 feet. In Fig. 129 the inner edge of this layer is marked by the figure of Tokhta Ākhūn standing on it. The original thickness of this foundation layer could not be exactly determined, but was probably under 2 feet. The layer of clay resting upon it was fully 5 feet thick. This clay consisted not of regular *pisé* as in the case of the Limes wall, but of large irregular lumps of hard clay such as could easily have been quarried on the surface from ground along the river-bed subject to temporary flooding, or from the banks of depressions left dry after inundation. These lumps had no doubt been compacted by means of wet mud stamped over and between them.

Use of fascine layers in wall.

Next followed a layer of Toghrak stems and branches 22 feet wide with a thickness of 1½ feet. In the case of this 'fascine layer', to use a convenient expression borrowed from my description of the Tun-huang Limes and of the next two above, I noted that in order to assure a more uniform level, and hence greater firmness, a bedding of tamarisk brushwood had been placed on the top of the clay lumps and below the pieces of Toghrak timber. The next layer of clay had a height of 4½ feet and was protected by a layer of timber 15 feet wide and fully 2 feet in thickness. Above it rested clay to a height of 4 feet, carrying on its top a layer of Toghrak wood about 10 feet wide. The thickness of this last timber and brushwood layer could not be exactly measured owing to decay from exposure, but probably exceeded 2 feet. The wall everywhere higher up had suffered too much by erosion to permit of measurement. But there can be little doubt that the last 'fascine layer' had in turn been covered by clay and had, perhaps, also carried some kind of parapet. It is probable also that the slopes of the wall had originally throughout been coated with clay. But erosion had carried this off, as well as the outer portions of the clay layers wherever exposed, with the result that, as the photographs in Figs. 129, 133, clearly show, the intervening 'fascine layers' were left overhanging.

Dimensions of layers of clay and fascines.

The sectional sketch in Pl. 10 shows that the wall in its original state must have risen to over 21 feet. It also makes it clear that while the width of the successive 'fascine layers' diminishes upwards in the approximate proportion of 2 to 3, their thickness distinctly increases as they approach the top. It is the reverse with the layers of clay, which starting with 5 feet at the bottom are reduced successively to 4½ and 4 feet higher up. It seems likely that the object was to prevent top-heaviness and the consequent risk of sliding. With the same object the whole of the wall was reinforced by a heavy timber framework, of which the upright posts arranged in pairs could be traced along the NW., NE. and SE. faces wherever preserved and clear of sand.[12] The distance between the inside and outside posts of each pair was about 15 feet, which suggests that their top reached to the third fascine layer from the bottom. It is probable that these posts were joined and held in position by cross-beams passing through the clay or fascine layers; but I was unable to ascertain the system

[12] In Fig. 123, which shows the bags containing our store of ice being unloaded and stacked under the north corner of the circumvallation, some of these posts are seen on the left emerging along the outside foot of the wall.

of construction exactly, as time could not be spared to make a regular cutting through the massive rampart.

Materials used in wall construction.

The materials and method employed in the construction of the fort wall are clearly of antiquarian interest. The method, even in the absence of any other proof, would suffice to make it highly probable that the erection of the fort took place at a period when the influence of Chinese engineering practice prevailed in the Lop region. From the materials used it may be concluded with certainty that there stood in the close vicinity of the site an extensive jungle belt, containing wild poplars big and small, such as is to be seen to-day by the side of every river-bed in the Tārīm basin that contains running water and does not immediately adjoin a terminal basin holding salt or brackish water.[12] The neighbourhood of the ancient dried-up river-bed that we passed south of the fort fully accords with this belief, and so also does the use made in the construction of the wall of clay lumps such as could most easily be obtained from ground kept moist by periodical inundation. The abundance of Toghrak timber in the immediate vicinity of this fort may explain the fact that its walls were far more solidly constructed than those of the circumvallation of the ruined station L.A. explored in 1906, and have consequently survived in far better condition. However that may be, it is noteworthy that the corners of the walled enclosures of both L.K. and L.A. are orientated towards the cardinal points.

Construction of ancient gateway.

Another indication of antiquarian interest was furnished by the gateway, which was found to pass through the north-eastern face of the circumvallation at a point about a hundred feet from the eastern corner. The top of the gateway, together with that of the adjoining portions of the wall, had been destroyed by erosion; but from what had survived of the timber framework, the plan and arrangement of the gate could be restored with ease (see Pl. 10). The sides of the gate were revetted by means of nine posts on each side, set in two massive foundation beams still *in situ* and each measuring 22 feet. A cross-beam, also still in position, joined these two towards the entrance and showed that the width of the passage had been slightly over 10 feet. Of the side posts, seven still stood upright on the north side, and the dowels at the top of one or two that retained their original lengths showed that the gate passage had a height of 10 feet. The gate was closed towards the outer end of the passage by a massive wooden door of two leaves, each 5 feet wide. One of these was lying on the ground, practically intact, with its boards, 3 inches thick, secured by stout cross-joints. The cross-beam previously mentioned showed the sockets that once held the door jambs. The adjoining posts had holes into which fitted the cross-bar securing the folds when closed. In dimensions and arrangement the gateway showed close resemblance to that which led through the rampart of the defensive quadrangle at the Kara-dong Site, as excavated in 1901.[14] My renewed exploration of this ruin in 1908 has proved that it belonged approximately to the period when the Niya and Lou-lan sites were abandoned.[15]

Debris remains from large structure.

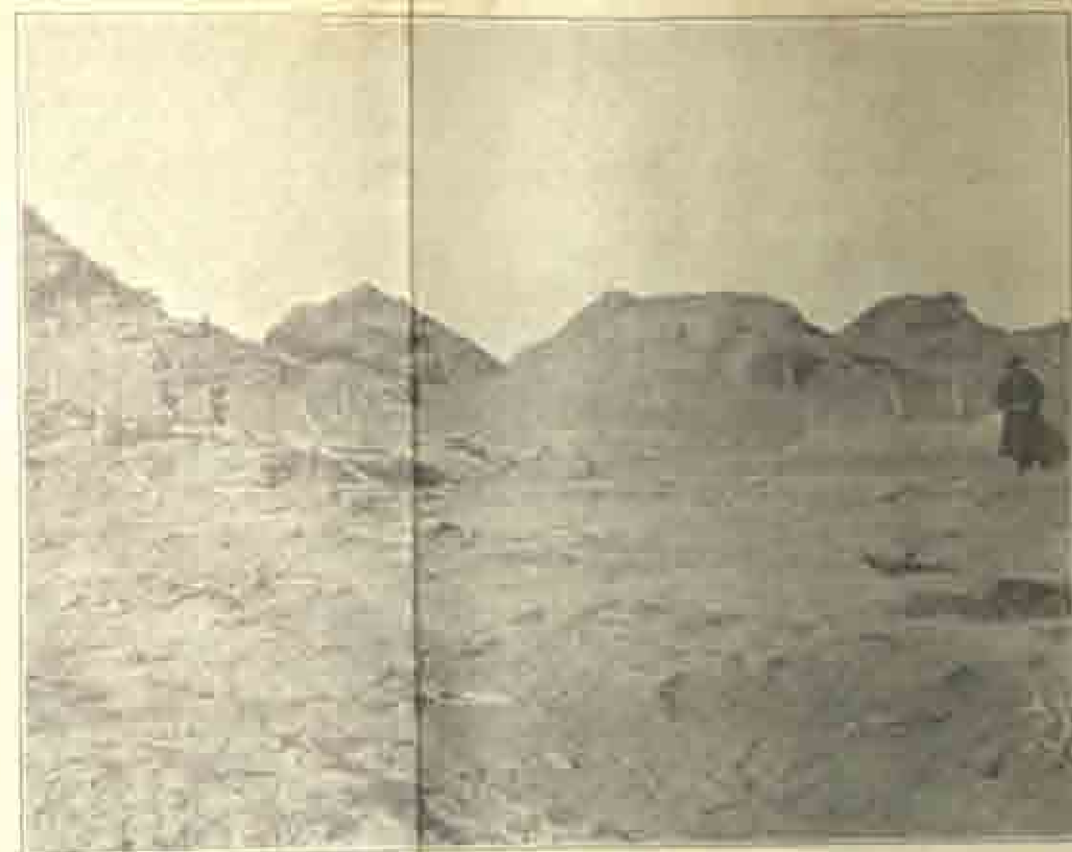
Within the walled enclosure, first inspection had shown me an area, iii, near the middle of the north-eastern wall, of about 130 feet by 100, covered with the heavy timber debris of completely eroded structures. To the south of it there were the remains of two small groups of timber and wattle-built quarters, stretching from north-east to south-west (i in Pl. 10), and partially filled with drift-sand. Of the larger structures at iii, nothing remained but massive beams and posts belonging to the wall foundations and framework, thrown down in utter confusion, as Fig. 133 shows. All this timber, including pieces over 30 feet in length, was shrivelled and fissured by centuries of exposure. As the soil below had been carried off by erosion to a considerable depth below the original ground level, it was impossible either to trace the outlines of the structural arrangement

[12] See *Serindia*, i. p. 355; iii. pp. 1239, 1296 n. 1.
[14] Cf. *Ancient Khotan*, i. p. 447, Fig. 53; ii. Pl. XXXVIII.
[15] See *Serindia*, iii. p. 1242.



131. PANORAMIC VIEW OF WIND-ERODED GROUND NEAR RUINED STRUCTURES, N. XLIV, NIYA SITE.

Remains of structures, N. XLIV, on terrace on right; ground occupied by ancient vineyard on extreme left.



132. REMAINS OF ANCIENT VINEYARD, WITH POSTS ONCE CARRYING TRELLIS, NEAR N. XLIV, NIYA SITE.

iv i iii

133. PANORAMIC VIEW OF INTERIOR OF RUINED FORT L.K., LOP DESERT, TAKEN FROM NORTH CORNER.

Remains of dwelling I in centre; timber debris of completely eroded large structure, III, in foreground; on extreme left quarters ii, iv in course of excavation; wind-eroded terrace on right marks western corner of circumvallation.

or to find remains of such objects as might have been left behind in this building. That it may have been intended for public use as a kind of official residence or rest-house appeared to me probable from its size. I searched in vain near it for rubbish-heaps such as might, from our experience at other sites, have been expected to survive better than the building. Nor did we discover any refuse deposits elsewhere within the fort, except a comparatively small one, v, under the north-west wall. Apart from dung of horses, only a few small pieces of felt were found there. It must, however, be remembered that lack of time and labour precluded any attempt at a complete clearing of those parts of the interior, mainly along the north-east wall, which were covered by heavy drift-sand.

Absence of large rubbish-heaps.

The long dwelling i in the southern portion of the area had suffered less from erosion, probably owing to the protection afforded by the drift-sand which had spread over it from the lee side of a better-preserved portion of the north-east wall. As the panoramic view (Fig. 128) taken before clearing shows, many of the posts of the timber and wattle walls still stood upright. But the plastered walls that they had supported rose nowhere to more than three or four feet, except in the rooms iii and iv to be presently mentioned, lying close to the dune-covered wall. As soon as we had pitched camp at the site and Afrāz-gul with a small party had been dispatched on a reconnaissance to the north-west in search of more ruins, the excavation of i was started. The walls in all rooms proved to be built of a rough but strong framework of Toghrak wood, with a vertical wattle of closely packed tamarisk branches which were secured to cross-beams joining the posts of the framework (Figs. 138, 139). The plaster laid on both sides of the wattle to a total thickness of 8 or 9 inches was coarse on the surface, but showed remarkable consistency. The straw mixed with the plaster was that of reeds only. The construction of the framework and wattle showed close resemblance to that observed at the ruins of the Niya Site, though the materials used were throughout rougher.

Remains of ruined quarters.

The clearing of the westernmost room, i (Fig. 134), measuring 27 feet by 20, brought to light an interesting object in the shape of the double-bracket capital, L.K. i. 03 (Pl. XV), well carved in hard Toghrak wood and close on 3 feet long. In the arrangement of its four members and in their decorative treatment it shows the closest resemblance to the wooden capital L.M. I. iii. 01 from the site discovered north-west of L.K. and described in the next section. With its two scroll-shaped brackets recalling Ionic volutes it suggests close affinity also to the wooden double brackets found at the Lou-lan station L.A., as well as to the double brackets that crown the stucco pilasters decorating the base of the Mīrān shrine M. II. In discussing these pilasters in *Serindia* I have already pointed out the clear relation between the double brackets of Lou-lan and Mīrān with their turned-down volute-like ends, and the corresponding features of capitals represented in Gandhāra relievos and their Persepolitan models.[16] I have also fully stated there the chronological evidence that may be drawn from a comparison of these double brackets of the Lou-lan sites and Mīrān with later developments of the same architectural ornament illustrated by double brackets from the sites of Farhād-Bēg-yailaki and Khādalik. The description given by Mr. F. H. Andrews in the List below of the decorative features of our L.K. find renders it unnecessary here to analyse details. But emphasis may be laid on the fact that even in the absence of other evidence these features would suffice to establish the closest chronological relation between the ruined fort and the sites of L.M. and L.A.

Carved wooden double bracket.

Apart from the practically intact fold of the door leading into room i and the plastered fire-place in the opposite corner, the finds made here were confined to a piece of well-made hemp rope (L.K. i. 01) and a pestle of hard stone. Nor did the clearing of the other rooms in this western portion of the dwelling yield more than a few small objects, like the two glass beads L.K. I. 03,

Smaller finds in quarters.

[16] See *Serindia*, i. pp. 486 sq., 491 sq., with Figs. 99, 120.

ii. 02 (Pl. XXIV) and bronze fragments L.K. i. 01, ii. 01. Three of the rooms had sitting platforms, and in two these were provided with raised hearths in clay.

Rooms under NE. rampart.

Beyond the flight of rooms just described there lay to the north-east and close under the rampart another small group of quarters, which, judging from the timber debris that strewed the ground between, appeared to have once been connected with it. The outer rooms here, too, had suffered much from erosion; but two others nearer to the enclosing wall were filled with sand to a height of 6 or 7 feet, and in these some observations of interest could be made. The entrance to room iii (Figs. 138, 139) was through a door of which the single wooden fold was found still in its place ajar. A looped string attached to the centre of the top of the door was manifestly intended to fasten it. The doorway, seen from outside in Fig. 138, was curiously low, only 4 feet 3 inches, with a width of 2 feet 5 inches. The height of the room was shown by the intact posts of the framework to have been 9½ feet. A small clay platform, 3 feet 5 inches square, boarded round with willow wood, rose near the centre of the room to a height of about a foot and, as its top was reddened by fire, was taken by my men for the working place of a blacksmith. In confirmation they pointed to a shallow trough, about 3½ feet by 1 foot, carved roughly out of a Toghrak trunk, which was found in the same room and which was assumed by them to have served as a smith's cooling tank. Fig. 138 shows it on the right, lying outside on the sand. Fragments of a large earthen jar were also discovered here.

Finds in room L.K. iv.

In another room, iv, approached from what may have been a central apartment of the block, a massive wooden pillar once supporting the roof still stood upright. The wooden double bracket which had surmounted the pillar was found close by at a height of about 3 feet from the floor level. It measured 3 feet 3 inches in length with a width and height of 9 inches. Though badly decayed and fissured, it showed clearly the same volute-like ends already noted in the double bracket L.K. i. 03 (Pl. XV) and in corresponding pieces from the Lou-lan station L.A. From outside the same room was recovered the wooden implement L.K. iv. 02 (Pl. XXIX), with an iron tang at one end, which may have served for cutting reeds. It is noteworthy that a beam from the roof of iv, in Eleagnus wood, and another in White Poplar wood from the room outside iii, afforded the only indication that cultivation had existed at some place within reach of L.K. That much of the wood on the floor of room iv and near it was found rotten proved that moisture must have reached the ground level within the fort at some time after its abandonment.

Objects in metal and stone from outside fort.

Among miscellaneous small objects picked up from wind-eroded soil around the fort some Chinese coins may first be mentioned. Two of them are *Wu-chu* pieces, like the fragmentary one which Tokhta Ākhūn had brought me from his reconnoitring visit, and which he said he had found within the walled enclosure; another is an uninscribed Han coin. Two more coins of the last-named type, as well as a fragment of a *Ho-ch'üan* piece, were found close outside when I visited the fort. Numismatic evidence therefore clearly favoured attribution of the ruins to the period that had seen the Lou-lan sites in the north occupied and abandoned. Of other finds, the most interesting was an excellently preserved silver ear-ring, L.K. Fort. 07, originally gilt, of superior design and workmanship (Pl. XXIV). It was picked up near the north-east face of the fort. With its thin pieces of silver sheet moulded in ornamental design and its pendant of wire loops and fine wire rods, it well bears comparison with the exquisite little gold ear-ring in filigree work from the Niya Site.[17] The result produced by wind-erosion on this ground is illustrated by the fact that not far from the place where we found this fine specimen of the silversmith's art, dating from the early centuries of our era, there could be picked up on practically the same level remains of the stone age, like the well-finished stone arrow-heads, L.K. Fort. 04–5, which are manifestly neolithic.

[17] See above, p. 148, N. 03 (Pl. XXIV).

Date indicated for ruined fort L.K.

Immediately after my arrival at L.K. I had dispatched Afrāz-gul with a couple of camels and men to reconnoitre the smaller fort L.L. visible from the site and to search for more ruins north-westwards, where the direction of the ancient river-bed had led me to surmise their existence. The information he brought back on the morning of February 7th, on his return from his successful reconnaissance, was very encouraging, and caused me to start at once for the fresh site reported. Before, however, I describe the result of this further exploration, it will be convenient to record here briefly the conclusions that I was able to draw from the observations and finds at L.K. Though the latter did not include any written remains, yet their general character and the evidence of the coins left no doubt that the ruined fort dated back approximately to the same period as the Lou-lan station L.A., which we know to have been occupied in the third century A. D. and abandoned soon after. Whether the fort L.K. was built at the same time as L.A. or earlier it seems impossible to determine. But that its occupation could not have extended much beyond the first thirty years of the fourth century, at which period we know that traffic by the ancient Chinese route through the north of the Lop Desert and past the Lou-lan station ceased,[18] becomes highly probable on consideration of certain topographical facts.

Topographical indications.

Inspection of map sheets Nos. 29, 30 shows that the ruined fort lies exactly on a straight line connecting the Lou-lan station L.A. with the site of Mīrān. I believe that I have proved in *Serindia* that the latter corresponds to the town of *Yü-ni*, which the annals of the former Han dynasty know as the chief place of the Lop territory and which Li Tao-yüan's commentary on the *Shui ching*, composed at the beginning of the sixth century A. D. but based on earlier materials, speaks of as 'the old eastern town' of the same territory.[19] The latter text also shows that the terminal lake in which the Tārīm then lost itself north of Yü-ni must have occupied approximately the same position as the present Kara-koshun marshes.[20]

Position of L.K. relative to L.A. and Mīrān.

Hence we may assume that the route between the Lou-lan station on the ancient Chinese 'road of the centre' and Yü-ni, the capital of Lop in Han times, is likely to have followed closely the straight line which connects the site of L.A. with that of Mīrān and actually passes the ruined fort of L.K. The waterless wind-eroded desert which now separates the sites of L.A. and L.K. is shown by our surveys to have then been a deltaic area reached by southern branches of the Kuruk-daryā and therefore practicable throughout for traffic. It thus becomes very probable that the ruined fort L.K., the distance of which from L.A., about 30 miles, is but a little less than a third of the whole length of the straight line between this important station and Mīrān, was intended to guard the direct route connecting the two places and to facilitate traffic along it. The choice of this particular point on the route as the site of the fort is fully accounted for by the vicinity of the agricultural settlement, the remains of which I was able to trace at the site L.M. and which will be described in the next section.

Section II.—LIST OF OBJECTS FOUND NEAR OR EXCAVATED AT FORT L.K.

MISCELLANEOUS OBJECTS BROUGHT BY TOKHTA AKHŪN FROM SITE OF L.K.

L.K. 01. Bronze brooch setting, elliptical, with raised rim; jewel missing. Four small holes drilled in back plate. Much corroded with rough patina. 1¼" × 1". Pl. XXIII.

L.K. 02-5. Four frs. of bronze plate. Rough patch of silver fused on to 02; heavy patina on all. Gr. M. ⅞"; smallest ⅝". Pl. XXIV.

L.K. 06-11. Misc. bronze frs. *06.* Part of loop of small bronze buckle; width ⅝". *07-08.* Convex stud-heads, diam. ½" and ⅜". *09.* Tongue of small buckle with hole through flattened end for hinge-pin; length ⅞". *010.* Fr. of bronze plate, corroded. Gr. M. ⅞". *011.* Small convex stud-head with stump of iron shank; diam. ¼" (nearly).

L.K. 012. Glass bead, blue green, translucent, flattened spheroid. Diam. 3/16".

[18] Cf. *Serindia*, i. pp. 426 sq.

[19] See *ibid.*, i. pp. 326 sq.; Chavannes, *T'oung-pao*, 1905, p. 569.

[20] Cf. *Serindia*, i. p. 328.

L.K. 013. Six hard paste (?) balls, dark, opaque; cf. L.K. 047. Diam. of largest $\frac{1}{2}$"; smallest $\frac{3}{8}$".

L.K. 014. Half of glass bead, blue, translucent; echinus shape. $\frac{5}{16}$" × $\frac{3}{16}$".

L.K. 015. Half of glass bead, green, translucent, melon-shaped. $\frac{5}{16}$" × $\frac{3}{16}$".

L.K. 016. Fr. of glass ring, fine blue, translucent. Length $\frac{5}{8}$", thickness $\frac{1}{4}$" × $\frac{1}{4}$" (nearly), orig. diam. *c.* $\frac{7}{8}$".

L.K. 019. Glass bead, twelve-sided, in form of double hexagonal pyramid with common base, pierced from apex to apex. Fine brown-pink, translucent. Cf. L.K. 060. Length $\frac{5}{8}$", gr. diam. $\frac{1}{2}$". Pl. XXIV.

L.K. 020–1. Two glass beads, light and dull amber, translucent; flattened spheroids. Diam. $\frac{3}{8}$" and $\frac{1}{4}$". Pl. XXIV.

L.K. 022. Fr. of glass vessel, translucent white, with raised rib on one side. $1\frac{3}{8}$" × $1\frac{1}{8}$". Pl. XXIV.

OBJECTS FOUND ON MARCH SOUTH OF L.K. SITE

L.K. 073–8. Six frs. of worked stone, small, incl. jasper pygmy blades [Mr. R. A. Smith]. *078* pierced with small countersunk hole. Largest $1\frac{1}{16}$" × $\frac{5}{16}$", smallest $\frac{1}{2}$" × $\frac{3}{16}$".

L.K. 079. Stone. Hard dark grey, chisel-shaped. Haematite. $2\frac{1}{4}$" × $\frac{3}{4}$" × $\frac{1}{2}$".

L.K. 080. Fr. of iron, elliptical, rough and oxydized. $1\frac{1}{8}$" × $\frac{3}{4}$" × $\frac{1}{2}$".

L.K. 081. Fr. of bronze, rectang. fr. $\frac{9}{16}$" × $\frac{1}{2}$" × $\frac{3}{16}$".

L.K. 082. Fr. of iron, irregular shape. $\frac{3}{4}$" × $\frac{1}{2}$" × $\frac{1}{8}$".

L.K. 083. Bronze buckle, small elliptical, with flat undulating tongue. Oxydized. Diam. $\frac{3}{4}$" × $\frac{5}{8}$". Pl. XXIV.

L.K. 084. Bronze implement, shaped like small battle-axe with oblong ferrule (broken). Blade also broken on one side. $1\frac{3}{8}$" × $1\frac{3}{8}$". See Pl. XXIII.

L.K. 0161–2. Two stone celts (?), roughly worked. *0161.* $4\frac{3}{4}$" × $3\frac{1}{4}$" × $\frac{1}{4}$" to $\frac{3}{4}$". *0162.* $4\frac{1}{2}$" × $3\frac{1}{2}$" × $\frac{5}{8}$" to nil.

OBJECTS FOUND IN VICINITY OF L.K. SITE

L.K. 023–44. Misc. bronze frs. from spoons, small vessels, rings, &c. *024,* part of spoon handle with punch-marked ring and centre near one end. *040,* convex circular nail-head. *044,* thin oblong plate pierced with small hole at each end. All thickly patinated. Gr. length 2", smallest $\frac{3}{8}$". Pl. XXIV.

L.K. 045. Bronze bangle, of flat wire, segmental in section, gilded. Well preserved, but broken through in one piece. Width of wire $\frac{1}{8}$", thickness $\frac{3}{16}$", diam. of bangle *c.* $2\frac{1}{4}$".

L.K. 046. Fr. of bronze bangle, gilded similar to L.K. 045. Length $1\frac{1}{4}$".

L.K. 047. Fifteen hard paste (?) balls, as L.K. 013. Blackish, some smooth, others roughened by erosion, or perhaps fire. Gr. diam. $\frac{5}{8}$", smallest $\frac{3}{8}$".

L.K. 048–9. Frs. of stone or glass beads. *048.* Fr. of carnelian (?), with hole bored through (broken). $\frac{3}{8}$" × $\frac{5}{16}$". *049.* Two frs. of translucent blue glass bead. $\frac{1}{4}$" and $\frac{3}{16}$".

L.K. 050. Fr. of lignite (?), irregular. $\frac{13}{16}$" × $\frac{5}{8}$" × $\frac{1}{4}$".

L.K. 051. Bezel of bronze ring, with deep blue jewel (paste) in circular setting. Diam. of jewel $\frac{3}{16}$", of bezel $\frac{3}{8}$". Pl. XXIV.

L.K. 052. Flat leaden cone, with large hole pierced vertically; resembling small spinning-whorl. Orig. silver-covered; frs. of silver remaining. Diam. at base $\frac{9}{16}$", h. $\frac{5}{16}$". Pl. XXIV.

L.K. 053. Misc. bronze frs., all minute, including two frs. of small bronze rings $\frac{5}{16}$" and $\frac{1}{4}$"; two frs. of small bronze nails $\frac{3}{8}$" and $\frac{5}{16}$"; one fr. of hollow wire $\frac{3}{8}$"; and two bronze frs. of irregular shape $\frac{3}{8}$" and $\frac{1}{2}$".

L.K. 054. White pebble or piece of shell. $\frac{11}{16}$" × $\frac{1}{2}$".

L.K. 055. Fr. of talc, of irregular shape. $\frac{1}{2}$" × $\frac{3}{8}$" × $\frac{1}{16}$".

L.K. 056. Fr. of glass vessel, translucent pale buff. Simple moulded or cut decoration on one side. $1\frac{1}{4}$" × $\frac{1}{2}$" × $\frac{1}{32}$". Pl. XXIV.

L.K. 057–8. Two frs. of glass, translucent green-blue. *057,* of bead, flattened spheroid; *058,* of ring. $\frac{1}{4}$" and $\frac{5}{16}$".

L.K. 059. Fr. of glass bead, *millefiori* having transparent green body with opaque yellow 'flowers'. $\frac{5}{16}$" × $\frac{3}{16}$". Pl. XXIV.

L.K. 060. Fr. of glass vessel, showing rim and concave-faceted outside. Fine brown-pink, translucent; cf. L.K. 019. Good quality and thin. $1\frac{3}{8}$" × 1". Pl. XXIV.

L.K. 061–7. Seven frs. of glass, pale honey-colour, translucent; *061* showing part of plain rim, *062* and *065* frs. of hollow moulded orn., and *063* (greenish, prob. from different vessel) broken tubular edge. *064* is end of ornamental applied rib. Gr. M. $\frac{7}{8}$". Pl. XXIV.

L.K. 069. Fr. of bronze bangle (?). Curved wire moulded with annular rings. Corroded in patches. Chord $3\frac{1}{4}$", thickness of wire $\frac{5}{32}$".

L.K. 085. Chip of worked stone, grey. $\frac{3}{4}$" × $\frac{5}{8}$" × $\frac{1}{16}$".

L.K. 088. Splinter of glass, rich blue, translucent, slightly concavo-convex. $\frac{11}{16}$" × $\frac{5}{16}$" × $\frac{1}{32}$".

L.K. 089. Loop of bronze buckle, elliptical, tongue missing. Diam. $\frac{13}{16}$" × $\frac{11}{16}$".

L.K. 090. Bronze wire, tapering, flattened to chisel-edge at thick end. Length $2\frac{3}{4}$", gr. width $\frac{1}{8}$".

L.K. 091. Fr. of pottery; rim of vessel. Spongy coarse red clay, blackish on exterior. Lip recurved, outer surface moulded. 2" × 3" × $\frac{1}{4}$". Pl. XXVI.

L.K. 092. Fr. of glass bead; triple bulb, greenish-blue, translucent. 7/16" × 1/4". Pl. XXIV.

L.K. 093. Fr. of bronze ring. Chord 1/4", width 1/8".

L.K. 096. Cone of greenish-blue glass; blunt, opaque. H. 5/16", diam. of base 1/4". Pl. XXIV.

L.K. 097. Glass bead, double bulb, gilt. Length 1/4", gr. diam. 3/8". Pl. XXIV.

L.K. 098. Disc of lignite (?). Channelled and broken at back, flat on face. Diam. 1/2", gr. thickness 3/16".

L.K. 099–100. Two frs. of glass; yellowish-white and greenish-white, translucent; *0100* showing bit of plain rim. Gr. fr. (*099*) 1 1/8" × 1/2" × 1/32".

L.K. 0101–9. Misc. glass and paste frs. *0101* and *0105*. Frs. of blue glass beads, cone-shaped and spherical, translucent. Gr. M. 5/16". *0107*. Blue glass bead, translucent, with channelled sides. Amalaka shape, perfect condition. Diam. 7/16", h. 3/8". *0108*. Blue paste bead, cubical, opaque. 5/16" × 1/4". *0102*. Brown paste bead, spherical, opaque. Diam. 5/16". *0106*. End of yellow glass appliqué (?) rod, translucent. Length 3/8". *0104* and *0109*. Opaque paste balls, as L.K. 013, 047. Gr. diam. 1/4". *0103*. Wooden bead (nut?), pierced. Length 7/16". Pl. XXIV.

L.K. 0110. Fr. of bronze orn., small triangular, with stem curved for attachment. 1/2" × 3/8" × 1/16".

L.K. 0111. Stone leaf-shaped arrow-head. Purplish-brown jasper, well made. Length 1 1/4", gr. width 7/12", gr. thickness 1/8".

L.K. 0112. Stone core, yellowish-brown jasper. 1 1/8" × 3/4" × 1/2".

L.K. 0113. Pottery disc, chipped from potsherd; prob. for spinning-whorl as *Ser.* iv. Pl. LI, M. i. iv. 009; but not pierced. Pale red clay. Diam. 1 3/8", thickness 3/16".

L.K. 0114. Lump of iron, much corroded; curved. 4" × 2 1/4" × 1/2".

L.K. 0115–16. Two frs. of pottery, plain, pale red; *0115* with light buff slip on outside. 3 1/4" × 2 1/2" × 1/4".

L.K. 0117. Core of yellow stone. 1/2" × 1/2" × 3/8".

L.K. 0118. Fr. of hard grey stone, more or less heart-shaped. 1 1/2" × 1 1/4" × 1/2".

L.K. 0119–20. Frs. of two stone blades. Gr. fr. 1 3/8" × 3/8" × 1/8".

L.K. 0121–2. Two frs. of iron; rough, much oxydized. Gr. fr. 1 1/4" × 1" × 5/16".

L.K. 0123–6. Four frs. of pottery, red and (*0123*) black. Red, coarse and ill-washed. Gr. fr. 2 3/8" × 1 3/4" × 1/4".

L.K. 0127–9. Three stone implements, or frs. of, roughly worked. *0128*, celt. Gr. M. 2 1/4" × (gr. width) 2 1/8" × (gr. thickness) 3/8".

L.K. 0130. Stone sphere, of irregular shape, flattened at poles and two sides. Diam. 2 1/4".

L.K. 0131–2. Two frs. of pottery slag. Gr. fr. 1 1/4" × 1" × 1/2".

L.K. 0133. Fr. of iron, oxydized. 1 1/4" × 1/2" × 3/16".

L.K. 0135–54. Misc. frs. of worked stones: chips, blades and cores. Gr. fr. (*0137*) 1 1/4" × 1" × 1/2".

OBJECTS FOUND OUTSIDE FORT L.K.

L.K. Fort. 04–5. Two stone arrow-heads; leaf-shaped. Dark grey and purple jasper. Well made. *04* slightly broken at point. Lengths 2 1/4" and 1 9/16", gr. widths 5/8" and 1/2".

L.K. Fort. 06. Glass bead, gilded; baluster shape of three bulbs. Length 1/2", gr. diam. 3/16".

L.K. Fort. 07. Silver ear-ring, with traces of gilding, made in two parts joined by a copper loop. Lower and larger part is roughly sq. in shape (9/16"), and consists of two thin pieces of silver sheet, moulded in ornamental design, then placed back to back, and joined (imperfectly) at edges.

Moulded orn. shows relief circle surrounding hollow-sided square with pierced centre; the segments enclosed between circle and square 'pecked', to contrast with the plain bands forming these latter. Above circle runs horizontal four-scalloped band with free ends, and below a three-scalloped band of the same kind. Below again, along lower edge of each sheet, a row of small holes, from which hangs a series of 8-shaped wire loops carrying tassel of five wire rods, flattened and pierced to take wire at upper ends.

Upper part is the same except for tassel and attachment, and placing of four-scalloped band below circle and three-scalloped above; but it is also smaller and consists of single sheet only. To back of it, at bottom, is attached the large wire loop for suspension from ear. This carries first the small copper loop which attaches lower part of orn., then turns sharply upwards, and again down to form hook. Very good design and sharp impression. Wire apparently drawn. Excellent condition. Length without hook 1 1/2". Pl. XXIV.

L.K. Fort. 08. Object of white stone (?): triangular, slightly convex, drilled through centre. Sides 1 1/8", thickness 3/16". Pl. XXIV.

L.K. Fort. 09. Fr. of pottery vessel, fine dull grey, showing part of trumpet mouth and bulging shoulder with incised nebule pattern. 3 1/2" × 2 1/4" × 1/4". Pl. XXVI.

OBJECTS EXCAVATED WITHIN FORT L.K.

L.K. i. 01. Fr. of bronze hook fastening (?), in two pieces. Thin plate, narrowed and round at one end, sq. and bifurcate at other; the two limbs slightly recurved and broken off. Hole in round end. 3/4" × 7/16".

L.K. I. 02. Fr. of bronze plate. 3/16" sq.

L.K. I. 03. Glass bead, blue, opaque, ring-shaped. Diam. 5/16", h. 1/4".

L.K. i. 01. Fr. of hemp (?) rope, knotted into loop; two-ply. Well made. Length 8 1/4", thickness 3/8".

L.K. i. 02. Pestle, hard green-black stone (basalt ?), roughly ellipsoidal, rough at one end. Length 2 3/4", diam. 1 1/4".

L.K. i. 03. Wooden double-bracket capital in one piece consisting of four members: centre rectangular block which rested on shaft, two brackets and an abacus. Centre block plain, projecting 1/2" from face of brackets; under-surface, 11" × 7 1/4", containing socket for shaft 3" diam. and 2 1/4" deep.

Brackets are simple scrolls falling to level of bottom of block; their lower inner edges spring from bottom corners of block, rise at about 45° and then scroll over to eye. Their outer line drops nearly vertically but slightly outward from below corners of abacus and then scrolls under to join inner edges. Top and inner borders join abacus and block respectively. Eye, which is too large and cuts into scroll, is treated as a sunk, flattened cone, apex outwards. Edges of brackets slightly chamfered.

Abacus consists of two bands each 1" wide. The upper a plain fillet; the lower, 'weathered', that is, sloped slightly back from its lower edge to its junction with under-surface of upper fillet, is divided into eight oblong flat billets on the front face. These are separated from each other by vertical prism or keel ornament, 1/2" wide, formed by r. and l. sloping chisel cuts.

Corner billet is carried round to end face, on which are three billets, including the corner ones. On each end face below centre billet is a small, slightly raised, square label imitating, but without the functional reason, the raised support on pulvinatus of L.M. I. iii. 01.

Front and back of double bracket are alike, but one side much split and weathered, while the other is perfect.

In centre of upper surface, which is flat, is mortice 2 1/2" × 1/2" × 1 1/4" deep. Wood hard. Length 2' 9 1/4", height 10 1/2", thickness 7 1/4". Pl. XV.

L.K. ii. 01. Fr. of bronze plate, oblong, curved, with small hole drilled at one corner. 3/4" × 1/2".

L.K. ii. 02. Glass bead, greenish-blue, semi-transparent, long, tubular. Length 1 1/4", diam. 1/4". Pl. XXIV.

L.K. iv. 01. Fr. of pottery: coarse, red, ill-washed, grey on surface; showing part of large incised pattern of circles, bands and chevrons orn. with incised lines and dashes. 4 1/4" × 3 1/4" × 5/16". Pl. XXV, XXVI.

L.K. iv. 02. Handle of wooden agricultural (?) implement. Slightly curved horizontally and thickened at one end. To narrow end is attached an iron tang with two rivet holes; one rivet in position with square washer on upper surface of handle. Perished and split. Length 10 1/2", diam. 1 1/4". Pl. XXIX.

L.K. v. 01. Fr. of felt, yellow, with band of sewing in white and brown. 5" × 2 1/4".

L.K. v. 02. Frs. of felt, fine, whitish. Gr. length 5".

L.K. v. 03-4. Two goose (?) feathers, broken, brown. Length 6".

Section III.—THE SITES OF L.L. AND L.M.

March to ruin L.L.

On February 7th I proceeded to the small ruined fort that Tokhta Ākhūn had reported, and reached it after a march of nearly three miles almost due west of L.K. The ground that we crossed was throughout bare clay sculptured into Yārdangs by wind-erosion. But the depth of their trenches decreased as the fort L.L. was approached, and in its immediate vicinity did not exceed 5 to 6 feet. There, too, the patches overrun by light drift-sand were more extensive. To the south of our route the line of the ancient river-bed, previously noted near L.K., could be clearly traced by the rows of dead Toghraks along its banks; its direction lay approximately to the north-west. Some worked stones, including a small jade celt, L.K.–L.L. 01, were picked up on the way and indicated that the area of prehistoric occupation so noticeable near L.K. extended also westwards.

Circumvallation of L.L.

The ruin L.L. proved to be closely akin to L.K. in constructive features, but considerably smaller and less well preserved. Its circumvallation, roughly built of stamped clay with intervening layers of tamarisk branches, formed an oblong of which the two shorter sides, about 138 feet in length, had the bearing ENE. to WSW., thus lying in the direction of the prevailing winds. The two other sides of the oblong showed a length of approximately 218 feet. The rampart, best preserved on the shorter side approximately facing north, showed a thickness of about 26 feet on the ground level and seven successive clay layers each about 16 inches thick. The courses of tamarisk branches and brushwood dividing them had a thickness of about 6 inches.

The east face, which probably had contained the gate, as suggested by a prostrate heavy post,

was completely eroded for a distance of about 74 feet. To the south of this portion the east wall face projected about 42 feet outwards to afford space for a small inner enclosure adjoining it, about 68 feet long, which extended to the south-east corner. This inner enclosure was marked off from the rest of the interior by walls on its north and west sides, about 8 feet thick and consisting mainly of rough tamarisk fascines set in clay. The ground of this enclosure was raised about 8 to 10 feet above the rest and was thickly covered with masses of reed-straw and refuse, mainly the dung of sheep and other animals. In clearing these layers of refuse there were found numerous fragments of fabrics, mainly of felts and woollen materials (L.L. 01, 03, 06–7, 013–15). Enclosure in S.E. corner.

A fragment of printed silk, L.L. 02 (Pl. LXXXVI), found here shows on blue ground a diagonal trellis pattern of white dots, and may claim particular interest because Mr. Andrews' examination indicates that its weave is the same fine warp-rib which his study of the figured silks from the cemetery site L.C., discussed below,[1] has proved to be peculiar to our earliest specimens of Chinese silk fabrics from Han times.[2] The chronological indication furnished by this printed silk was not recognized by me at the time, nor was any to be derived from the small fragments of bronze or iron (L.L. 04–5, 010) found in this place. But fortunately a small piece of torn paper was discovered in the same refuse deposit, with a few characters distinctly resembling Early Sogdian writing, and these alone sufficed to make it highly probable that the occupation of this little fort dated back to the same period as that of the Lou-lan station L.A. Find of printed silk and paper fr.

The absence of any structural remains in the interior made it impossible to determine whether the refuse layers just referred to were due to occupation during the time when the fortified post served its original purpose or to such later use of its shelter by herdsmen as was proved to have occurred at various ruined structures at Mīrān and the Lou-lan Site.[3] Apart from the small inner enclosure which the refuse deposits described had helped to protect, the interior of the circumvallation was found completely scoured by erosion. Though less striking in its effects (the maximum depth of erosion was here only about 6 feet), it had followed exactly the same course as at L.K., the sand having been driven into the interior through the breach on the east side, and out again by a gap towards the north-west corner. Of a timber and plaster structure that had once stood outside about 60 yards from the east wall, only splintered fragments of foundation beams, &c., survived on the slope of a low mound. Erosion of interior.

From L.L. I proceeded to the north-west under the guidance of one of the men who had accompanied Afrāz-gul on his reconnaissance, and after a march of about three miles reached the nearest of the ruined dwellings reported. Our way led over eroded ground covered in many places with detached dunes 6 to 10 feet high, and along it worked stones, as well as potsherds and small bronze and glass remains, were picked up in increasing numbers as the site L.M. was approached (see List). Among the small glass objects, the beads in coloured or gilt glass (L.L.–L.M. I. 021–2, 026; L.K.–L.M. 01–3, 010–14) and pieces of cut or moulded glass (L.L.–L.M. I. 02, 07; L.K.–L.M. 04–9, Pl. XXIV) may be specially mentioned. The ruins of the L.M. site were found to be scattered on either side of a depression, manifestly an old river-bed, lined with rows of dead Toghraks and winding in a general direction from west to east (see the plan, Pl. 11). The first ruined dwelling, L.M. I, which was reached after crossing a similar but smaller depression, rose on an erosion terrace about 14 feet high, and by its position and appearance closely recalled the ruins of the Niya Site. Low walls of timber and wattle partly covered with drift-sand indicated the position of rooms on the original ground level; that of others badly eroded was marked only by big pieces of timber, which strewed the eroded slopes of the terrace all round. Approach to ruined site L.M.

[1] See below, pp. 232 sqq.
[2] Cf. Andrews, *Ancient Chinese Figured Silks*, p. 19 (*Burlington Magazine*, 1920, September).
[3] Cf. *Serindia*, i. pp. 245, 400, 402, 427, 490.

Clearing of ruined dwelling L.M. I.

The clearing of this first ruin, L.M. I (Pl. 11), which was accomplished before the approach of nightfall obliged us to return to our camp at L.K., proved singularly fruitful. A central room, iii, measuring 25 by 30 feet, still retained in position most of the massive Toghrak posts that had formed the framework of its walls; these had been made of timber and wattle and had rested on big foundation beams, as seen in Fig. 137. Adjoining two of its walls were sitting platforms of clay, and athwart the floor lay the heavy central pillar of Toghrak wood that once supported the roof, with its fine wooden capital, L.M. I. iii. 01 (Pl. XV), still attached. This capital, fully described in the List below, with its voluted flanking blocks or brackets and its billet-decorated abacus, corresponds in design very closely to the double-bracket capital, L.K. I. 03 (Pl. XV), found in the ruined fort. As already noted above, a comparison of the latter find with the double brackets found at L.A., and with the capitals of the stucco pilasters in the Mīrān shrine M. II, had furnished a very useful chronological indication.[4] It was therefore particularly gratifying to obtain conclusive evidence of the date of the site L.M. and thus indirectly also of the ruined fort; this was found on clearing away the refuse from what remained of the floor of a room that once adjoined the central hall on the north-west.

Finds in refuse layer L.M. I. i.

The refuse layer of this room, L.M. I. i, heaped up to a height of about 2 feet over the narrow surviving strip of mud flooring, was composed mainly of reed-straw and camel-dung. But in this were recovered interesting fragments of textiles in silk and wool, including printed silks, L.M. I. i. 08–9 (Pl. LXXXVI), and pieces of woollen tapestry decorated with flowers and grotesque animals, L.M. I. i. 01 (Pl. XXXIII, LXXXVII); also remains of well-made leather articles, including a leather strap decorated with bronze ornaments, L.M. I. i. 016 (Pl. XXVI), and of wooden utensils such as the eating-tray, L.M. I. i. 017 (Pl. XXVIII). In type all these closely agreed with corresponding finds from the Lou-lan sites explored on my second journey. That the ruined dwelling belonged to the same period as these sites was definitely proved by the discovery in the same refuse heap of a number of Chinese paper fragments, including a large one, and a small wedge-shaped tablet with Kharoṣṭhī writing, L.M. I. i. 023. Of particular interest, too, were two small fragments of paper leaves, perhaps of a Pōthī, bearing three lines of minute and exquisitely written characters in slanting Central Asian Brāhmī script and apparently Kuchean language.[4a]

Finds in refuse heap L.M. I. ii.

Another refuse heap, covering what remained of the floor of a partially eroded room, ii, to the south-west of the central room, yielded no writings, but plenty of other interesting relics. The most noteworthy, perhaps, are the pieces of a finely lacquered casket, L.M. I. 01–4 (Pl. XXV), undoubtedly of Chinese manufacture. The top, bottom, and two longer side pieces were found disconnected, and the ends are missing. The top and sides are decorated externally with very gracefully designed borders showing cloud scrolls and grotesque beasts in red lacquer over black ground. Their design, as seen in Pl. XXV, very closely resembles in style that found in the figured silks of Han times that I subsequently discovered at the cemetery L.C. and shall have occasion to discuss below. The wooden bowl L.M. I. 05 (Pl. XXVI) is similarly of Han type, as shown by comparison with one, T. VI. b. ii. 001 (*Serindia*, iv. Pl. LII), recovered from the Tun-huang Limes. The same chronological indication is furnished by the designs of the figured silks, L.M. I. 026 and ii. 05 (Pl. XLII), and by their method of weaving, which is 'warp-rib', the characteristic technique of all figured silks of Han times both from L.C. and the Tun-huang Limes. Among other relics I may draw special attention to the well-made arrow-shaft of cane, L.M. I. 07 (Pl. XXVI); the wooden die, L.M. I. 012 (Pl. XXVI), of unusual type; the high narrow wooden beaker, L.M. I. 035 (Pl. XXVII), and the finely made wooden spindle, L.M. I. ii. 01.

A tramp in the dark of nearly six miles, made trying by the steadily increasing depth of the

[4] Cf. above, p. 187.

[4a] See Prof. Konow's Appendix F.



134. ROOM i OF DWELLING IN CENTRE OF FORT L.K., LOP DESERT.



135. TIMBER DEBRIS MARKING WIND-ERODED DWELLING, L.M. V, LOP DESERT.



136. YARDANG TERRACE WITH REMAINS OF DWELLING, L.M. III, LOP DESERT.



137. REMAINS OF WIND-ERODED ANCIENT DWELLING, L.M. I, LOP DESERT.



138. ROOM iii OF QUARTERS WITHIN FORT L.K., LOP DESERT, AFTER EXCAVATION.



139. INTERIOR OF ROOM iii IN QUARTERS OF FORT L.K., LOP DESERT

Fold of door in left corner.

Yārdang trenches as we proceeded eastwards, brought us back to the fort L.K. Next morning I had our camp moved to the newly discovered site L.M., which by its first 'finds' had held out such promise, and started work at a ruined dwelling situated amidst groups of dead Toghraks about 660 yards to the north-west of L.M. I. It occupied the top of a wind-eroded ridge rising fully 16 feet above the present ground level to the south. A terrace about 8 feet high, between this depression and the ruin, bore remains of dead tamarisks, thus suggesting that the ground, after having lain exposed to erosion for a prolonged period, had been reached again for a time by moisture. Erosion had reduced the structural remains still *in situ*: a large room measuring about 35 by 26 feet, of which the timber and wattle walls survived to a height of only about a foot above the ground; a smaller room adjoining on the north, i, which had suffered even more; and a place enclosed by rush walls on the south-west, iii. Big beams and rafters lying on the slope to the south-east showed that the building had extended farther in that direction.

Ruin L.M. II.

The clearing of the central room, covered only by about 8 inches of sand, brought no finds, but showed four massive oblong bases of Toghrak wood still marking the position where pillars had carried the roof. From what remained of room i there emerged the fragment of a paper leaf inscribed with exquisitely penned Chinese characters suggestive of some religious or literary text, besides a quantity of ragged fabrics, including a fragment of printed silk, L.M. II. i. 02, of the same pattern as found on a piece from L.M. I. In the refuse of room iii we recovered a wooden key, L.M. II. iii. 01 (Pl. XXVI), of a type already found at various sites of the Khotan region and elsewhere;[5] besides a wooden weaver's comb, L.M. II. iii. 03 (Pl. XXVI), and fragments of basket-work. Here, too, was found the fragment of a Kharoṣṭhī document on paper, L.M. II. iii. 04.

Relics recovered from L.M. III.

To the east of the surviving structure an area about 40 feet square had been protected from erosion by a thick layer of reed-straw and horse-dung. From this refuse, ii, there came to light almost at the start a crumpled up paper document, L.M. II. ii. 09 (Pl. CXXIV), measuring about 7 inches by 4, bearing remains of twenty lines of the Early Sogdian script, the first specimens of which had been discovered by me at the Lou-lan station L.A. and at watch-posts of the Han Limes west of Tunhuang.[6] The find was particularly welcome as it confirmed my previous chronological conclusions as to the occupation of this site and that of the small fort L.L. In addition, small fragments of paper documents in Chinese and Cursive Brāhmī script were recovered here. Fragments of stout fabrics in wool and goat's hair (L.M. II. ii. 02–4) and of cane basket-work (L.M. II. ii. 09–11, Pl. XXVI) may be noticed, and special mention may be made of the remains of a woollen pile carpet L.M. II. ii. 05, much worn and unfortunately too faded in its colours for the pattern to be determined.

Documents recovered from refuse heaps.

Proceeding to the north-west we crossed a well-marked winding depression, about 90 yards wide, lined on either bank by rows of dead Toghraks, and at a distance of about 700 yards from L.M. II found an isolated Yārdang terrace crowned by the scanty remains of what, judging from the timber debris that strewed the slopes, must have been a fair-sized dwelling (Fig. 136). The outline of only a single room, about 27 feet square, could still be traced by the Toghrak posts that alone showed where its walls had stood. Two oblong wooden bases with sockets for pillars survived on the floor, such as were found elsewhere in the ruins of L.M. Among the timber debris outside it on the slopes were two double-bracket capitals, of exactly the same shape as that found at L.M. I, but far more decayed. From refuse lying outside the west wall of the room a fragmentary paper document was recovered showing Chinese writing on one side and several lines in Kharoṣṭhī on the other.

Remains of L.M. III.

Another ruined dwelling, L.M. IV, discovered at a distance of about 340 yards to the west,

[5] For references, see *Serindia*, iii. pp. 1541, 1546, Index, *s.v.* keys, locks.

[6] Cf. *Serindia*, i. p. 383; ii. pp. 652, 671 sqq.

Other eroded structures.

appeared to have been of larger size, but had suffered very badly through erosion. One of the two rooms of which the walls of timber and wattle could still be made out measured 40 feet by 28, and the other may have been equally large. Even where the timber wall foundations still retained their position, the ground was swept completely clear by the wind. The force of its erosive action was attested by the fact that the soil to the south of the ruin was scooped out to a depth of 22 feet below the original ground level as marked by the floor of the building. Among the big Toghrak beams and other timber scattered over the slopes, two badly splintered capitals with voluted ends could just be distinguished. There, too, a number of pieces of iron household utensils (L.M. iv. 01–5, Pl. XXIV, XXVI) were picked up, together with a few bronze fragments. The only other structure of the site, L.M. v, situated about 330 yards to the north of L.M. iv, had also, as Fig. 135 shows, undergone far-advanced erosion. Among the much-withered timber pieces some double-bracket capitals and pillar bases of the usual shape were barely recognizable.

Area over which ruins scattered.

The extent of the ground, fully a mile from north-west to south-west, over which the ruined dwellings just described were found scattered, appears to me in itself a sufficient indication that the settlement to which they belonged was one of some local importance. It was only by reason of the uniformly massive construction of their timber framework that their remains had survived the destructive effects of wind-erosion. Just as at the Niya Site and at other ruined settlements explored in the south of the Taklamakān, it may be assumed that the extant ruins are those only of the more substantial buildings, while the mud-built dwellings serving the needs of the great majority of the inhabitants have been completely effaced by the same powerful agent. This conclusion is fully supported by the great number of small miscellaneous objects of the 'Tati' type that could be picked up at the site practically within a single day and without such systematic search as a

Numismatic evidence.

longer stay would have permitted. Among such finds six Chinese coins may be mentioned in the first place. They are all of the inscribed and large *Wu-chu* type, which belongs to Han times and the immediately succeeding period. The numismatic evidence agrees therefore with the evidence furnished by the manuscript finds in Kharoṣṭhī and Sogdian, in its bearing on the chronology of this Site.

Miscellaneous small finds.

To the period of occupation contemporary with that of the Lou-lan station may also be ascribed the very numerous fragments of glass vessels and glass beads (L.M. 025, 027, 071–101, 0134; L.K.–L.M. 01–13) in a variety of colours or gilded, some cut or showing raised patterns (Pl. XXIV). The spout in fine blue glass, L.M. 070 (Pl. XXIV), deserves special mention. The fragment of glass slag, L.M. 034, might suggest local manufacture. Among ceramic remains, the fragments of green-glazed pottery, L.M. 042, 0122, and of faceted grey stoneware, L.M. 054, may claim interest. Remains of small objects in paste, L.M. 063–9, 0133, are also represented. The numerous bronze relics include the finely modelled anthemion ornament, L.M. 0119 (Pl. XXIV); a 'cat-bell', L.M. 0131 (Pl. XXIV), similar to that found at the L.A. station; the bezel of a jewel, L.M. 0129 (Pl. XXIV); the neatly made ear-pick, L.M. 0150 (Pl. XXVI), &c. Iron implements are also represented, L.M. 051, 0145–7 (Pl. XXIV, XXVI). By the side of these remains manifestly belonging to the period of early intercourse with China and the West we find, just as at other Lou-lan sites, far older stages of civilization illustrated by miscellaneous relics of the stone age which wind-erosion has laid bare. The well-made stone arrow-heads, L.M. 010, 0155, are probably neolithic, while the numerous 'knife-blades', L.M. 012–24, 0156, and jade celts, L.M. 04, 043, 055 (Pl. XXII), manifestly date back to an earlier epoch. The stone cores, L.L.–L.M. 1. 01 (Pl. XXII), L.M. 06–9, point to local manufacture.

Stone age remains.

The presence of stone age remains at and around L.M. must obviously be considered in connexion with the corresponding finds made on the ground extending south-eastwards to L.K. as well as with those which were so plentiful on our march of December 15, 1906, to the north of

Camp 121.[7] It clearly proves, as already pointed out in *Serindia*, that a wide belt of ground here, stretching from west to east, must have been fit for at least nomadic occupation during a prolonged period in prehistoric times. A variety of physical circumstances connected with the effects of wind-erosion makes it impossible to draw definite conclusions as to the chronology of this prehistoric occupation.[8] But there can be no doubt that it presupposes the presence of running water in the several ancient river-beds traced here, though not necessarily in all of them at the same period. The considerable geographical interest of these ancient river courses, which the surveys of my second and third journeys in the Lop Desert have shown to be all derived from the Kuruk-daryā, has been briefly indicated already in *Serindia* and will claim our special attention farther on.[9]

Prehistoric occupation.

It is from this geographical point of view that particular importance attaches to the definite antiquarian evidence furnished by the exploration of the L.M. site. This evidence, as recorded above, clearly proves that a regular settlement, approximately contemporary with the Lou-lan station L.A., must have existed at the site during the early centuries of our era. That it was at least partly agricultural cannot be doubted, considering the character and distribution of the ruins and the fact that cereals have been picked up at one of them.[10] It is equally certain that the settlement obtained its water-supply from the river course, the dry bed of which was clearly traced within the area occupied by the ruins.

Occupation contemporary with that of L.A.

That this water came from the Kuruk-daryā was established by the discovery made by Afrāz-gul a year later, on his journey from the Chainut-köl lagoon to the Yārdang-bulak springs at the foot of the Kuruk-tāgh. An abstract of the observations recorded by him on this journey is given below in Chapter XX. But it will be convenient to anticipate here the result of the search that he made, in accordance with my previous instructions, on March 9, 1915, for other ruins in the vicinity of L.M. Starting from our old camping-place near L.M. III he made an extensive reconnaissance to the east and north-east without coming either upon ruins or dry beds. But after resuming his original direction of march to the north-west for about two miles he found a group of three dwellings substantially built in timber and wattle after the manner of those at L.M. In two of these ruins, as his sketch-plan of L.R. showed, the arrangement of the quarters was still partly traceable. But the rooms left exposed held much sand, while others to the west appeared to be completely covered by it. Afrāz-gul, having only three companions and little time to spare in view of the trying desert crossing before him, was unable to clear any of the quarters. But the small objects in bronze, iron and glass (see List under L.R.) which were picked up on the eroded slopes near them clearly show these ruins to be of the same date as L.M. A mile beyond the ruins, Afrāz-gul's farther route to the north-west crossed a well-marked river-bed about 100 yards wide with a depth attaining to 50 feet, but partly filled with dunes. As his plane-table survey shows (Map No. 29. c. 4), this old river course was last seen by him winding from north to south-east at a point about 2 miles from L.R. Farther on, high dunes covered the ground to an increasing extent and observation of underlying features became very difficult or impossible.

Ruins L.R. and old river-bed NW. of L.M.

When considered in conjunction with what the examination of the ground from near L.K. has shown us, the supplementary evidence thus gathered at L.R. appears to me to prove conclusively that a string of small sites stretched, in the early centuries of our era, from L.R. to L.K. along a line nearly ten miles in length. These clearly mark a southernmost extension of the Kuruk-daryā delta which, in the period preceding the abandonment of the Lou-lan Site and of the early

Southern limit of Kuruk-daryā delta.

[7] See *Serindia*, i. pp. 356 sqq.

[8] Cf. *ibid.*, i. p. 357 sq.

[9] See *ibid.*, i. pp. 355 sq.; below, pp. 205 sq., 210.

[10] See L.M. 0137-8. The two grains of what seems a species of Indian corn were brought back by Afrāz-gul from his reconnaissance, without an indication of the exact find-place (probably the refuse heaps of L.M. I. or II). That there was cultivation in the vicinity is proved at L.K. by the beams of Eleagnus and White Poplar wood found in the eastern group of quarters; see above, p. 188.

Chinese trade route through it, still received water sufficient for permanent occupation. Until the Chinese and other documents found at L.M. have been duly interpreted no definite view can be formed of the character of this settlement. But it appears to me on topographical and archaeological grounds very probable that it derived some importance from its position close to the direct route connecting the Chinese station of 'ancient Lou-lan', i. e. the Lou-lan site L.A., with Mīrān and Charkhlik, then as now the chief places of the Lop territory or Shan-shan.

Position of L.M. relative to L.K. fort.

In *Serindia* I have discussed in detail the great rôle which that station, the bridge-head as it were of the ancient Chinese high road coming through the desert from Tun-huang, must have played during the centuries immediately before and after Christ, standing as it did on the track of the main traffic between China and the West.[11] The route connecting it with the old capital of Shan-shan or Lop, located at the site of Mīrān, and thence with the oasis of Charkhlik (*I-hsün*), was certainly much frequented, and as the fort L.K. lies just on the most direct line between the two points,[12] it may safely be assumed to have been intended to guard the route. But it is probable that a local source of supplies existed for the maintenance of the fortified roadside post and for the convenience of such traffic as passed by it, and since no ancient cultivation was traceable around L.K., the conclusion seems justified that it was the settlement marked by the L.M. site which furnished those supplies and thus directly accounted for the location of the fort at this point. We shall see farther on that the position occupied by the ancient Chinese *castrum* L.E. on the old high road leading from the Tun-huang Limes to the Lou-lan Site is likely to have been determined by a similar consideration.[13]

Section IV.—LIST OF ANTIQUES EXCAVATED OR FOUND AT THE SITES L.L., L.M., AND L.R.

OBJECTS FOUND BETWEEN RUINED FORTS L.K. AND L.L.

L.K.–L.L. 01. Jade celt; broad, thin, sharpened to fine axe-edge. Green jade. 1¾" × 1⅛" × ¼".

L.K.–L.L. 02–3. Two stone flakes, single and double ribbed. 1¼" × $\frac{9}{16}$", and 1¼" × ⅜".

OBJECTS EXCAVATED WITHIN RUINED FORT L.L.

L.L. 01. Fabric frs.; rags of felt, canvas, silk, &c., with frs. of hair rope and hemp cord. Gr. length (fabric fr.) 1' 8".

L.L. 02. Fr. of printed silk, blue with resist pattern of white dots in diagonal trellis, each lozenge containing a rosette of seven dots around a centre dot. Weave, fine warp-rib. Torn. *c.* 3" sq. Pl. LXXXVI.

L.L. 03. Felt cord; three strands, twisted. *c.* 7" long.

L.L. 04. Bronze frame, oblong, on thin hemp string. ⅞" × ⅜".

L.L. 05. Fr. of iron (?) slag. 2¼" × 2" × $\frac{15}{16}$".

L.L. 06. Misc. fabric and vegetable frs., including wool, felt, string, plaited grass, plain woollen cloth, hank of cloth (?) thread, &c. Gr. length (thread) 2' 3".

L.L. 07. Bundle of felt frs., with string and pieces of woollen jean. Gr. M. (felt) *c.* 9½" × 10¾".

L.L. 08. Fr. of grey marble, irregular. 2¼" × ⅞" × ⅝".

L.L. 09. Quantity of chopped straw, and two small frs. of perished wood.

L.L. 010. Fr. of bronze, concavo-convex. 1½" × ¾" × $\frac{1}{32}$".

L.L. 011. Fr. of pottery, fine black. 1⅛" × ⅞" × ¼".

L.L. 012. Stone core, hard black. 1" × 1¼" × ⅝".

L.L. 013. Strip of woollen fabric; light buff, strong, evenly woven, plain cloth. 9" × ¼".

L.L. 014. Strip of felt, light natural yellow, with remains of strong figured woollen fabric stitched to it. 8" × 1".

L.L. 015. Fr. of felt, light natural buff, in holes. 11" × 9½".

L.L. 016. Hank of cotton (?) thread, undyed. Length 1' 4".

[11] Cf. *Serindia*, i. pp. 416 sqq.

[12] See above, p. 189.

[13] See below, p. 260; Map No. 29. D. 3.

OBJECTS FOUND BETWEEN THE SITES L.L. AND L.M.

L.L.-L.M. I. 01. Chert core, from which long flakes have been split. 2″ × 1″ × ¾″. Pl. XXII.

L.L.-L.M. I. 02. Fr. of glass, fine dark blue, translucent, with few faults. Concavo-convex, with raised band applied to outer surface. 1⅛″ × ⅞″ × ⅛″. Pl. XXIV.

L.L.-L.M. I. 03-6. Four jasper flakes, black, grey, and yellow. Gr. fr. 2″ × 3/16″.

L.L.-L.M. I. 07. Fr. of glass, from thickened lip of vessel, dull olive green. Well made. 1¼″ × ⅜″.

L.L.-L.M. I. 08-10. Three frs. of glass, translucent blue, well made. No pattern, but dark lines in one due perhaps to impurity. Gr. fr. 9/16″ × ⅜″.

L.L.-L.M. I. 011. Green stone celt (?), roughly worked. 1⅜″ × ⅝″ × 5/16″.

L.L.-L.M. I. 012-13. Two jasper flakes, dark brown, rough. Gr. fr. 1⅛″ × ⅝″.

L.L.-L.M. I. 014. Fr. of pottery, from lip and neck of circular vessel. Mouth trumpet-shaped with good mouldings on outer surface. Clay, well washed and well burnt. 3″ × 1½″, thickness at neck 3/16″. Pl. XXVI.

L.L.-L.M. I. 015. Fr. of iron, thin bent, oxydized. ⅞″ × ⅜″.

L.L.-L.M. I. 016. Fr. of bronze finger-ring, half of; triangular, flat inside, convex outside. Hollow filled with lac. Well made. Gr. M. 9/16″.

L.L.-L.M. I. 017-18. Two frs. of shell, white. 1⅛″ × ⅜″ × 3/16″.

L.L.-L.M. I. 019. Fr. of paste bead, opaque yellow, stringy texture. ⅜″ × ¼″.

L.L.-L.M. I. 020. Carnelian (?) bead, red; octahedron, flattened at extremities. Length ⅜″, gr. width ¼″.

L.L.-L.M. I. 021. Glass bead, pale blue, translucent; dodecahedral. Length ½″, gr. width ⅜″.

L.L.-L.M. I. 022. Half of glass bead, cylindrical, greenish-blue, translucent. ⅜″ × ⅜″.

L.L.-L.M. I. 025. Bronze finger-ring; plain band. Diam. ⅝″, width ⅛″.

L.L.-L.M. I. 026. Glass bead, gilt, flattened spheroid; as L.K.-L.M. *011*, &c. Diam. ¼″, h. 3/16″.

OBJECTS FOUND SOUTH-EAST OF SITE L.M.

L.K.-L.M. 01-3. Three frs. of glass beads; opaque dark and light blue, and green; blue ribbed vertically. Gr. diam. (*01*) ⅜″.

L.K.-L.M. 04-9. Misc. frs. of glass, plain, cut and moulded; translucent pale yellow and blue green. *08* shows plain edge of vessel and side faceted from ⅜″ below, *07* shows pattern cut on wheel. Gr. fr. (*08*) 1 3/16″ × ⅞″ × 1/16″. Pl. XXIV.

L.K.-L.M. 010. Fr. of glass bead, opaque blue, prob. part of L.K.-L.M. 01. Gr. M. ⅜″.

L.K.-L.M. 011-14. Four frs. of glass beads. *011-12*, flattened spheroids, gilded; *013*, double-bulb 'baluster' bead, gilded; *014*, hollow cylindrical, translucent yellow. Gr. length (*014*) ½″.

MISCELLANEOUS OBJECTS FOUND AT L.M.

L.M. 01. Pottery spinning-whorl; flat disc, pierced. Grey clay, ill washed. Diam. 2 3/16″. Pl. XXVI.

L.M. 02. Fr. of pottery; coarse spongy red, glazed dark brown either side with bands of double incised lines through glaze. Glaze perhaps due to vitrification of surface of body. 2⅝″ × 1¼″ × ⅜″.

L.M. 03. Pottery spinning-whorl, of flat echinus shape, orn. on under-side with ring of eight small circles. Diam. 1⅞″, gr. h. ⅝″. Pl. XXVI.

L.M. 04. Jade celt, dark green, rough one side. 1¾″ × 1 3/16″ × ⅜″. Pl. XXII.

L.M. 05. Fr. of jade (?). Thin, flat, mottled olive green with rough surfaces. 1½″ × 1¼″ × ⅛″.

L.M. 06-9. Stone cores of various kinds, yellow, grey, brown. Largest 2½″ × 1⅜″ × ⅞″.

L.M. 010. Jasper arrow-head, leaf-shaped. Point broken. Well made. Light green stone. Length 1⅛″.

L.M. 011. Square prism of stone, dark brown, smooth sides, ends broken. 1¼″ × 5/16″ × 5/16″.

L.M. 012-24. Frs. of stone blades, of various sizes and several different stones. Gr. fr. 1¼″ × ½″ × 3/16″.

L.M. 025. Fr. of glass, dark blue, translucent, cut in rectang. pattern on outside. Gr. M. ⅞″. Pl. XXIV.

L.M. 026. Bronze stud, with sq. pyramid head. Head ½″ sq., h. 5/16″. Pl. XXIV.

L.M. 030-33. Frs. of bronze orn. and sheet, and of well-made buckle (*031*). Length of buckle 1¼″, gr. width ⅞″. Pl. XXIV.

L.M. 034. Fr. of glass slag. ⅞″ × 5/16″.

L.M. 035-40. Misc. frs. of bronze nails and wire. Gr. length ⅞″.

L.M. 041. Iron rivet, corroded. Length 1 5/16″, gr. width ⅞″.

L.M. 042. Fr. of pottery, rough grey, glazed green each side. Glaze mostly gone. 2 3/16″ × 1¼″ × ¼″.

L.M. 043. Jade celt, dark green, broken and prob. unfinished. $2'' \times 1\frac{1}{4}'' \times \frac{1}{4}''$.

L.M. 044–9. Bronze: rough nuggets. Largest *c.* $\frac{3}{4}'' \times \frac{1}{2}''$.

L.M. 051. Iron (?) punch or chisel; straight bar, pointed one end, flat chisel-shape at other. Length $3''$, gr. width $\frac{1}{4}''$. Pl. XXIV.

L.M. 052. Fr. of stone, dark grey, lamellar structure, lozenge-shaped in section (scraper ?). Weathered. $1\frac{3}{4}'' \times 1\frac{1}{8}'' \times \frac{5}{16}''$.

L.M. 053. Fr. of marble (?). White, streaked with grey strata. Weathered smooth. $1\frac{3}{8}'' \times 1\frac{1}{4}'' \times \frac{3}{8}''$.

L.M. 054. Fr. of stoneware; smooth grey with faceted outer surface. $2\frac{1}{4}'' \times 1\frac{3}{16}'' \times \frac{1}{4}''$.

L.M. 055. Jade celt, pale green, roughly made. $2\frac{1}{4}'' \times 1\frac{1}{4}'' \times \frac{11}{16}''$. Pl. XXII.

L.M. 056. Stone core, black, from which long narrow flakes have been split. $1\frac{1}{4}'' \times 1'' \times \frac{1}{2}''$.

L.M. 057–9. Three frs. of stone, irregular shape, chipped; possibly cores. *058*, red-brown streaked with pink (flint ?). Gr. fr. (*058*) $1\frac{1}{4}'' \times 1'' \times \frac{1}{4}''$.

L.M. 060. Bone spinning-whorl; flat disc, pierced. Diam. $\frac{15}{16}''$, thickness $\frac{1}{4}''$. Pl. XXIV.

L.M. 061. Pottery spinning-whorl; flat disc, roughly chipped from potsherd, pierced in centre. Diam. $\frac{3}{4}''$.

L.M. 062. Pottery disc, rough, partly drilled as for whorl. Diam. $1\frac{1}{4}''$.

L.M. 063–9. Seven paste balls, blackish, opaque, irregular shape; as L.K. 047. Largest $\frac{1}{2}'' \times \frac{3}{8}''$.

L.M. 070. Glass spout; fine blue, translucent. Curved, tapering, tubular; broken both ends. Length $2\frac{1}{4}''$, gr. diam. $\frac{3}{8}''$. Pl. XXIV.

L.M. 071–82. Twelve frs. of glass, fine blue, translucent, as L.M. 070. Slightly curved. Gr. fr. (*073*) $1'' \times \frac{3}{4}''$.

L.M. 083–93. Eleven glass beads or frs. of beads; including opaque green and light blue, translucent pink, yellow, light and dark blue, and one white glass gilded. Shapes: tubular spherical, ring, and two double-ring (*091* and *092*). Gr. length $\frac{3}{4}''$.

L.M. 094–9. Six frs. of glass; pale greenish or straw colour, transparent, with pattern raised in applied ribs. Average size $\frac{3}{4}'' \times \frac{1}{2}''$. Pl. XXIV.

L.M. 0100. Fr. of glass, pale buff, translucent, cut to disc; flat on one side, hollow cylindrical on other as though shaped on a wheel, for setting (?). Diam. $\frac{15}{16}''$.

L.M. 0101. End of glass rod, dark blue, translucent, resembling L.M. 071–82. Gr. M. $\frac{1}{4}''$.

L.M. 0102. Pebble, creamy-white, bean-shaped. $\frac{11}{16}'' \times \frac{7}{16}'' \times \frac{1}{4}''$.

L.M. 0103–17. Misc. frs. of bronze, mostly sheet. *0103* (largest) fr. of rim of vessel. $1\frac{1}{4}'' \times \frac{15}{16}'' \times \frac{1}{20}''$.

L.M. 0118. Bronze ring, broken, corroded. Diam. *c.* $\frac{3}{4}''$, width $\frac{3}{16}''$.

L.M. 0119. Fr. of bronze anthemion ornament, massive, cast in relief. In form of expanding plume, the feathers graduated in size from centre, and their division marked by channelled lines on back as well as front.

In upper end of each feather is hole passing partly through, and similar hole at back. The two prob. originally met, but passage choked by corrosion; probably intended for jewels. Each lobe is rounded off at upper extremity, and finished in small point. Lower end of orn. broken off, and most of R. p. side corroded. H. $3''$, gr. width $2\frac{1}{2}''$, thickness $\frac{1}{4}''$. Pl. XXIV.

L.M. 0120. Fr. of bronze rod, sq. in section, with iron core. Length $1\frac{1}{4}''$, width $\frac{1}{4}''$.

L.M. 0121. Fr. of shell. $1'' \times \frac{5}{16}''$.

L.M. 0122. Fr. of pottery, ordinary red, glazed green each side. Glaze much gone. Prob. part of rim of vessel. $\frac{3}{4}'' \times \frac{3}{4}'' \times \frac{1}{4}''$.

L.M. 0129. Bronze bezel of jewel, as L.K. 01. Elliptical, with plain inner and cable outer stone border. Two holes in floor of setting for ring or other attachment. $\frac{13}{16}'' \times \frac{5}{8}''$. Pl. XXIV.

L.M. 0130. Bronze ring; wire, round in section, broken. Diam. $\frac{3}{4}''$ to $\frac{7}{8}''$.

L.M. 0131. Bronze 'cat-bell', complete with clapper and suspension eye, as *Ser.* iv. Pl. XXIX, L.A. 00104, &c. Diam. $\frac{5}{16}''$. Pl. XXIV.

L.M. 0132. Flake of iron, oxydized. $1\frac{1}{4}'' \times \frac{1}{2}'' \times \frac{1}{8}''$.

L.M. 0133. Fr. of paste, opaque, chocolate-coloured. $\frac{3}{4}'' \times \frac{1}{2}'' \times \frac{5}{16}''$.

L.M. 0134. Fr. of glass, bronze colour, opaque. $\frac{1}{2}'' \times \frac{3}{8}'' \times \frac{1}{16}''$.

L.M. 0135–6. Two frs. of pottery clinker (?). Gr. fr. $1'' \times \frac{3}{4}'' \times \frac{5}{8}''$.

L.M. 0137–8. Two grains of Indian corn.

L.M. 0139. Fr. of woollen (?) string, bound round with crimson and buff thread. Length $1\frac{1}{4}''$, thickness $\frac{1}{8}''$.

L.M. 0140–3. Frs. of bronze nails; *0142–3* sq.-headed, corroded. Gr. length $\frac{5}{16}''$, gr. width of head $\frac{5}{16}''$.

L.M. 0144. Fr. of bronze spoon-bowl, long, with thickened edge. $2\frac{1}{4}'' \times \frac{3}{4}''$. Pl. XXIV.

L.M. 0145–7. Three frs. of iron implements; *0145*, curved, flat, broadening at one end into three points; *0146*, hook-shaped. Gr. fr. (*0145*) $2\frac{1}{4}'' \times 1\frac{1}{4}''$ (gr. width). Pl. XXVI.

L.M. 0148. Fr. of lead, irregular shape, drilled at one end. $1\frac{11}{16}'' \times \frac{1}{2}'' \times \frac{1}{4}''$. Pl. XXIV.

L.M. 0149. Bronze pin, bent over at blunt end, broken. Length $1\frac{7}{8}''$, gr. diam. $\frac{3}{32}''$.

L.M. 0150. Bronze miniature spoon. Sq. rod terminating in minute circular bowl set at right angle. Prob. ear-pick. Length $3\frac{1}{4}''$, width of bowl $\frac{1}{8}''$. Pl. XXVI.

L.M. 0153. Fr. of pottery, hand-made, gritty, light red. No orn. Gr. M. 6", thickness *c.* $\frac{1}{4}''$.

L.M. 0154. Fr. of bronze sheet, with rivet through. Gr. fr. $1'' \times \frac{1}{2}''$.

L.M. 0155. Jasper leaf-shaped arrow-head; boldly chipped, perfect condition; as L.I. 012, but smaller. Length 2", gr. width $\frac{9}{16}''$, gr. thickness $\frac{3}{16}''$.

L.M. 0156. Fr. of stone blade (sard), long narrow, double rib. Pink. $1\frac{1}{2}'' \times \frac{7}{16}'' \times \frac{1}{8}''$.

OBJECTS EXCAVATED IN ROOM i OF RUIN L.M. I.

L.M. I. i. 01. Frs. of woollen tapestry; woven with crude patterns of very stylized leaves, flowers, birds and animals. General scheme of arrangement difficult to determine. In two frs. is band of pairs of leaves in various colours, growing R. and L. of central horizontal stem. Below, a large-headed grotesque deer (?). In another fr. a series of running grotesque animals with long tails; in a third, a bird's wing. Eleven frs. in all. Colours, red, light and dark blue, green and tones of buff. Gr. fr. $8'' \times 8\frac{1}{2}''$. Pl. XXXIII, LXXXVII.

L.M. I. i. 02. Fr. of leather, soft and well cured. $3\frac{1}{2}'' \times 1\frac{1}{4}''$.

L.M. I. i. 03. Flat plait of fine woollen thread, natural buff. $1'\ 11'' \times \frac{1}{4}''$ (width).

L.M. I. i. 04. Fr. of vegetable fibre rope, stout two-ply. Length 1' 8", diam. $\frac{1}{4}''$.

L.M. I. i. 05. Triangular leather bag or sheath, thin, stitching undone. Roughly made. Depth $3\frac{1}{4}''$, width of mouth $1\frac{3}{4}''$.

L.M. I. i. 06. Fr. of silk, plain, white, with sewing. $2'' \times 1''$.

L. M. I. i. 07. Fr. of woollen fabric; loosely woven coarse crimson twill, with damask pattern now obscured by ragged state. $1'\ 4'' \times 8''$.

L.M. I. i. 08. Fr. of printed silk, with crimson ground, and rosettes of small dots interspersed with large single spots, *semé*, in resist. For another fr., see L.M. II. i. 02. Cf. also L.M. I. i. 09, and Ast. vi. iii. 03, Pl. LXXVIII. Perished. $5'' \times 2''$. Pl. LXXXVI.

L.M. I. i. 09. Fr. of printed silk; blue ground, pattern in resist of spots arranged in lozenge trellis with centre rosette in each. Cf. preceding and Ast. vi. iii. 03. $6\frac{1}{4}'' \times 2\frac{1}{4}''$.

L.M. I. i. 010. Fr. of silk, plain white, doubled and sewn. Rotten. $6'' \times \frac{3}{4}''$.

L.M. I. i. 011. Fr. of silk waste.

L.M. I. i. 012. Fr. of vegetable fibre rope. Two two-ply cords twisted together. $2'\ 1'' \times \frac{1}{4}''$.

L.M. I. i. 013. Leather band (?); two pieces sewn together, with fr. of wood adhering. Marks of seam along one edge and end; other edge and end torn. Length $1'\ 4\frac{1}{2}''$, width $5\frac{1}{4}''$.

L.M. I. i. 014. Bundle of woollen canvas rags. Thick, tightly woven; buff and brown.

L.M. I. i. 015. Fr. of woollen canvas, fine buff; in holes. Gr. M. $4\frac{1}{2}''$.

L.M. I. i. 016. Leather strap, two thicknesses superimposed and sewn at edges; orn. with pyramidal bronze studs riveted on, and two bronze bands near one end at which is round stud. Attached to centre, at right angles, is thinner strap with smaller pyramidal stud. Broken at both ends. Perhaps forehead strap of bridle. Length 10", width $\frac{3}{4}''$. Pl. XXVI.

L.M. I. i. 017. Wooden eating-tray, oblong, four-footed, the feet being short truncated pyramids (four sides) cut out of one piece with tray. Ends slightly bowed. Plain rim round edge, and upper surface slightly concave laterally owing to warping. Both upper and under surface scored with knife-cuts. Good condition. Length $1'\ 11\frac{1}{2}''$, width 9", h. $2\frac{1}{4}''$. Pl. XXVIII.

L.M. I. i. 018. Lidless wooden vessel, possibly a grain measure (?), cylindrical in shape; body cut out of one piece of wood; bottom another piece secured to body by wooden pins driven through walls. Bottom hollowed on inside. Walls split and warped; outside scored with knife-cuts; edges worn smooth. H. $5\frac{1}{4}''$, diam. 6", average thickness $\frac{1}{4}''$. Pl. XXVIII.

L.M. I. i. 023. Wedge label-like tablet; hole through sq. end. *Obv.* 2 short ll. Khar. above hole. *Rev.* 4 ll. Khar., somewhat effaced. Wood hard. $4\frac{3}{4}'' \times$ (max.) $1\frac{1}{2}'' \times c.\ \frac{3}{16}''$.

L.M. I. i. 024. Slip-like tablet; oblong, with hole through middle. Surface perished. No writing (?) either side. $4\frac{1}{4}'' \times \frac{3}{4}'' \times \frac{1}{4}''$.

OBJECTS EXCAVATED IN ROOM ii OF RUIN L.M. I.

L.M. I. 01–4. Casket of lacquered wood, ends missing and remaining parts disconnected. Shape, oblong; top larger than bottom, sides therefore slope inwards towards bottom. Lacquer applied over strong coarse canvas; inside sealing-wax red, outside black, orn. with red.

Top (02) orn. with double lines parallel to long edges forming $1\frac{1}{4}''$ borders; borders decorated with lozenges and spirals in fine lines; field with attenuated cloud scrolls and grotesque beasts painted with great freedom and skill. At one end a square notch is cut out and along one long edge are marks of three decorative fittings (sham hinges ?), of which only the depressions in the wood to which they were fixed and the lac used in fixing them remain; at ends are small dovetails and wooden dowel-pins.

Bottom of casket (*01*) orn. with a pair of lines round edge and another pair 1¾" within, the lines of each pair being about ¼" apart. At each corner was a hemispherical bronze boss with projecting flange at base, of which one boss is in position, one disconnected (L.M. I. ii. 07), and two missing. They appear to have been attached with lac only. Round base of each boss is red line; and in border, R. and L. of each, is small painted crescent. Field shows no orn.

Sides (*03* and *04*) are narrow panels with end edges cut to angles of about 40° with longest edges. On 03 are traces of painted grotesque animals and clouds of type similar to those on top, within border of double lines.

All pieces much faded and damaged. Most of red lacquer of pattern has disappeared, but the forms are visible on account of the better preservation of the portions of black ground originally covered by the red pattern. Size of top, 1' 11" × 6⅞"; bottom 1' 5¼" × 5¼"; sides, long edge 1' 11", short 1' 5⅜", end edges 4¼", width 3¼". Thickness throughout ¼". Bosses, h. ⅝", diam. 1¼". Pl. XXV.

L.M. I. 05. Wooden bowl of same type as *Ser.* iv, T. vi. b. ii, 001, Pl. LII, but unlacquered. Roughly made. Slightly curved from end to end, the ends being higher than the middle. Traces of pink inside. In three pieces, now mended. 4¼" × 3½" × 1¾". Pl. XXVI.

L.M. I. 06. Two frs. of cord of vegetable fibre; one soft and fine, the other coarse and harsh. Gr. length *c.* 2' 3", diam. ⅛".

L.M. I. 07. Wooden arrow-shaft, point broken off. Thickest part at centre of shaft. Plumes perished. Whipping, covered with black varnish, near notch. Material prob. cane, and certainly endogenous. Three minute holes near centre, perhaps indicating centre of gravity. 2' 2⅜" × ⅜". Pl. XXVI.

L.M. I. 08. Fr. of carved wooden architrave or abacus. Within a plain raised fillet border, shallow billets or dentils *c.* 3½" broad with space about 1¼" between. Between dentils, a vertical prism with sides sloping backwards R. and L. towards dentils. Rough work. Broken away at long edges and one end. 1' 4" × 2¼" × ⅞". Pl. XXVI.

L.M. I. 09. Fr. of carved wooden architrave, or abacus, similar to L.M. I. 08, Pl. XXVI. 1' 1¼" × 1⅞" × ⅞".

L.M. I. 010. Misc. frs. of goat and kid skin, cured and with wool adhering. Plentiful signs of sewing at edges. Gr. length *c.* 11".

L.M. I. 011. Fr. of linen (?) fabric, weave doubled and sewn. Sign of burning. Very ragged. Gr. M. 1' 8".

L.M. I. 012. Oblong wooden die. One side blank, the other sides marked respectively and consecutively with a cross in a square, three crosses (one such in an oblong), a triangle with centre line. Ends blank. Roughly made. 2¼" × ⅞" × $\frac{9}{16}$". Pl. XXVI.

L.M. I. 013. Turned wooden lid, slightly domed, with flat knob, projecting rim, and concave interior. Diam. 1⅝", gr. h. ⅞". Pl. XXVI.

L.M. I. 014–18. Frs. of silk garment, in stripes of red and blue silk sewn to plain white backing. Very ragged. Gr. length 10½".

L.M. I. 019. Fr. of paper, soft, blank, screwed up. Torn. 8¼" sq.

L.M. I. 020–4. Frs. of woollen (?) canvas rags, buff and red. Gr. fr. 1' 6" × 6½".

L.M. I. 025. Fr. of horn flask (?); cf. *Ser.* i. pp. 256, 267, 479; mouthpiece and part of body. Length 3¼".

L.M. I. 026. Strip of figured silk. Pattern in bands of red, blue, buff, &c., not clear, but cloud-scroll forms and quarter-foils are visible. Weave, double cloth, warp-rib. Much worn. 7" × 1¼".

L.M. I. 027. Fr. of woollen canvas, fine texture, in holes. Gr. M. *c.* 3".

L.M. I. 028. Fr. of iron object with one thickened edge. Rough. Badly corroded. 3" × 1⅜" × $\frac{11}{16}$". Pl. XXVI.

L.M. I. 029. Fr. of bronze plate, narrow at one end (broken), broadening to other where it is rounded and very thin. Slightly raised edges and central rib on one side. 2¼" × 1½" × $\frac{1}{16}$". Pl. XXIV.

L.M. I. 030. Wooden comb with arched back and thick widely spaced teeth. Prob. curry-comb. 3¼" × 3¼" × ½". Pl. XXVI.

L.M. I. 031. Fr. of roughly split wood, drilled with three rows of four holes each, in two of which remain pieces of string. 3¼" × 2" × ½". Pl. XXVI.

L.M. I. 032. Block of wood, broken at one end, with hole drilled roughly through middle and mark of burning at edge. 4" × 3" × ⅝".

L.M. I. 033. Wooden stick of natural L-shape, sharpened at end of long limb. Long limb 9½", short 4", gr. diam *c.* 1". Pl. XXVI.

L.M. I. 034. Fr. of vegetable fibre rope, two strands, coarse. Length 3' 5", diam. *c.* ½".

L.M. I. 035. Turned wooden beaker. High narrow cup, with plain rim (thinned down); sides very slightly curved, drawing in below bowl and expanding again to foot. Plain fillet round waist, and moulding round edge of base. Split in two, and one side of cup lost. Wood hard. H. 7$\frac{15}{16}$", diam. of rim 4⅛", of base 4¼". Pl. XXVII.

L.M. I. ii. 01. Wooden spindle, finely made, with bundle of short threads tied to it. Thickest part 2" from one end has ring of black dots placed *en échelon*. From this part it tapers smoothly in both directions. Length 1' 2¼", gr. diam. ⅜".

L.M. I. ii. 02. Horn spoon, with long curving handle thickened towards upper end. Much eaten and twisted. Length of handle 6", of bowl 2¼". Pl. XXVI.

L.M. I. ii. 03. Fr. of leather band, in several thicknesses, with bone disc, drilled through centre, attached by iron rivet. Band 1⅜" × ½", disc 1" diam. Pl. XXIV.

L.M. I. ii. 04. Bundle of leather frs.; thin, well tanned, buff-coloured, with marks of sewing on all. Gr. fr. 6″ × 4″.

L.M. I. ii. 05. Two frs. of figured silk; finely woven, with pattern of green (?) and buff cloud scrolls and lions to L. on bright crimson ground. Behind lion a quatrefoil. Pattern repeats across fabric. Weave, double cloth, warp-rib. Ragged, and details obscure. Gr. fr. 9″ × 1½″ (cleaned). Pl. XLII.

L.M. I. ii. 06. Coil of vegetable (?) fibre string, fine, two-ply. Length 1′ 10½″, diam. 1/8″.

L.M. I. ii. 07. Domed bronze boss, with narrow flange at base, filled with hard paste on which is impression of canvas and traces of glue. Evidently from wooden casket, L.M. I. 01, canvas-covered and lacquered. H. ½″, diam. of base 1¾″.

L.M. I. ii. 08. Small rag, with substance (drug ?) tied up in it. Length (tied up) 2″.

OBJECT FROM ROOM iii OF RUIN L.M. I.

L.M. I. iii. 01. Wooden double-bracket capital cut in one piece, consisting of four members—a centre block which rested on shaft, two flanking blocks shaped to suggest Ionic volutes, and over all an abacus. Centre and side blocks joined only at their upper parts. Under surface of centre block, *c.* 8″ square, with socket for shaft 4½″ diam. and 4″ deep. Centre block spreads laterally and symmetrically upwards in slightly convex curve to a width of 10½″ at a height of 6″, where it joins volutes.

Volutes roughly circular. Centre block and volutes are draughted about 2″ wide at margins of their faces, reserving *c.* ½″ raised surface within. Circular raised surface of each volute has in centre a circle, 4″ diam., incised deep with V cut *c.* ½″ across.

Abacus, which is slightly invaded by upper curves of volutes, has two rows, each of five long horizontal narrow billets with rounded faces. A third row of three equal and similar billets occurs centrally immediately below the two, the ends terminating at the edges of draughted margins of volutes. Abacus equal in length to greatest width of capital measured through centres of volutes. It therefore overhangs at ends the upper curve of pulvinatus. This projection is supported at each end by a raised, vertical, slightly curved central band 3½″ wide, which merges at its lower end into swell of pulvinatus. Ends of capital otherwise plain.

Back carved like front but much perished. Upper surface slightly channelled throughout, perhaps due to shrinkage and warping. Lowest points of volutes level with bottom of central block. The whole badly weathered and split. Length 3′ 4″, height 1′, thickness 8″. Pl. XV.

OBJECTS EXCAVATED AT RUIN L.M. II.

L.M. II. i. 01. Mass of decayed fabric frs., mainly blue silk, buff (? cotton) canvas, and felt.

L.M. II. i. 02. Fr. of printed silk, same as L.M. I. i. 08, Pl. LXXXVI (*q. v.*). Gr. M. 11″.

L.M. II. ii. 01. Bronze stud (?); cymbal-shaped, cast, with hole through centre of dome. Good condition. Cf. studs on L.M. I. 01. Diam. of base 1 11/16″, h. ¾″, width of rim 3/16″, thickness 1/32″. Pl. XXVI.

L.M. II. ii. 02. Fr. of woollen fabric, stout red, plain weave, having thick warp and thin weft of double yarn. Strongly woven. 1′ 3″ × 1″.

L.M. II. ii. 03. Fr. of sieve (?). Piece of very coarse open hair canvas, oversewn in places, and with felt and finer fabric adhering in places; cf. *Ser.* iv. Pl. XXVIII, N. XII. 0018. *C.* 5″ × 5″.

L.M. II. ii. 04. Flat plaited band of goat's-hair, with loop at one end. 6′ 9″ × *c.* 1″.

L.M. II. ii. 05. Fr. of woollen pile carpet, worked in blue, green (?), crimson, brown, and buff pile. Much worn, pattern unintelligible. Warp of woollen string, weft of thick woollen cord giving a bold ribbed effect at back. Pile lies between the shoots of weft. Very ragged and faded. 1′ 2″ × 1′ 2″.

L.M. II. ii. 06. Bundle of reeds from refuse.

L.M. II. ii. 07. Fr. of lacquered wood, from flat circular (?) object; with slightly upcurved rim (broken) divided from flat field by raised line. Field red, rim and back black. Broken on all sides. Lacquer direct on wood. 2″ × 1¾″ × 3/32″. Pl. XXVI.

L.M. II. ii. 08. Wooden stick roughly crutched at one end, and having conical knob at other with string wound below knob. Length 6¼″, width across crutch 3″, average diam. ¾″. Pl. XXVI.

L.M. II. ii. 09–11. Three frs. of wood and cane basket, curved, exactly similar in make to L.M. II. iii. 02. Gr. fr. 8½″ × 5½″. Pl. XXVI.

L.M. II. iii. 01. Wooden key, as *Ser.* iv. Pl. XVII, Kha. IX. 008, with three pegs unevenly spaced. Hole through pointed handle. Good condition. 6½″ × ¾″ × 1¼″ (including length of pegs). Pl. XXVI.

L.M. II. iii. 02. Two frs. of basket-work, rectang., with wooden stakes running lengthwise, and stout split cane weaving. For similar frs., see L.M. II. ii. 09–11. Weathered and brittle. Gr. fr. 1′ 3″ × 5½″ × ¾″.

L.M. II. iii. 03. Fr. of wooden weaver's comb, as *Ser.* iv. Pl. XXVIII, N. XXII. i. 001. Handle and part of toothed edge missing. 4″ × 2½″ × 2″. Pl. XXVI.

L.M. II. iii. 04. Fr. of paper, showing on one side two groups of Khar. chars. *Rev.* blank. 3½″ × 1½″.

OBJECTS FOUND AT RUINS L.M. III–IV

L.M. III. 01. Glass bead, gilt, double bulb. Length ⅞″, diam. ½″.

L.M. IV. 01. Fr. of iron plate drilled with six holes, showing action of fire on one side. Prob. part of cooking utensil. Edges broken and surface corroded, but hard. 9¼″ × 5¼″.

L.M. IV. 02. Fr. of iron strip, with remains of rivet at one end. Opposite end broken. Corroded but hard. 3¼″ × 1″. Pl. XXVI.

L.M. IV. 03. Fr. of iron strip, broadened and rounded at one end, in which is rivet-hole. Other end broken. Corroded but hard. 4¼″ × ¾″. Pl. XXVI.

L.M. IV. 04. Fr. of iron sickle; cutting edge much broken. Corroded but hard. Length 6½″, width ⅞″, thickness of back 3/16″. Pl. XXVI.

L.M. IV. 05. Iron rivet, short, thick, with irregularly shaped heads. Length ⅞″, diam. of larger head ⅞″. Pl. XXIV.

L.M. IV. 06. Bronze rivet-plate, shield-shaped, with two pins at back. Corroded. Length 13/16″, gr. width c. 9/16″. Pl. XXIV.

L.M. IV. 07. Fr. of bronze orn., in form of curved wing-like leaf. Broken off at bottom. Fair condition. Gr. M. 1¼″. Pl. XXIV.

L.M. IV. 08. Flat strip of horn, with slight waist in middle; pierced with three large holes (7/16″ diam.) from front to back. Much split. 2 5/16″ × ⅞″ × c. 7/16″. Pl. XXIV.

OBJECTS FOUND AT SITE L.R.

L.R. ii. 01. Bronze clip for strap; rectang., made of two oblong strips of sheet placed parallel to each other 5/16″ apart and joined at either end by ⅛″ rivet. Much corroded. 1¼″ × ⅞″ × (opening) ½″. Pl. XXIV.

L.R. ii. 02. Glass bead, gilt; 'baluster' shape made of four flattened spheroids. Length ⅝″, diam. 5/16″. Pl. XXIV.

L.R. iii. 01. Stone spinning-whorl; steatite (?) plano-convex disc, with hole 5/16″ diam. through middle. Soft greyish-black stone. Diam. 1 11/16″, gr. thickness c. ½″.

L.R. iii. 02. Bronze strap-end. Strip of sheet doubled, and joined at free corners by two 3/16″ × ¼″ rivets, crushed together. One edge broken; corroded. 1⅜″ (as doubled) × 1 3/16″, orig. opening ⅛″. Pl. XXIV.

L.R. iii. 03. Bronze buckle of elongated D-shape; curved part concavo-convex in section, straight part (tongue bar) round in section. Tongue lost. Fair condition. 1¼″ × 13/16″ × c. ¼″. Tongue bar ⅛″. Pl. XXIV.

L.R. iii. 04. Fr. of bronze rod, curved, perhaps part of buckle as preceding. Gr. M. 13/16″.

L.R. iii. 05. Iron ring; flat, elliptical, corroded. 1¼″ × (gr. width) ⅞″ × c. 3/16″.

L.R. iii. 06–7. Two frs. of iron rod, joining and forming curved portion of D-shape; part of buckle. Much corroded. Gr. length 1″.

L.R. iii. 08. Iron arrow-head; small, with long tang. Lozenge-shaped in section, faces apparently unhollowed. Badly corroded. Length of head 13/16″, of whole 2 7/16″, gr. width of head 5/16″. Pl. XXIV.

Section V.—ACROSS THE ANCIENT DELTA OF THE KURUK-DARYA

Start for Lou-lan station.

On the morning of February 9th we set out north-eastwards from our camp at L.M. in order to gain the station of 'ancient Lou-lan', L.A., which I proposed to make our base for the explorations immediately ahead. The route that was to take us there was a new one, and the ground to be traversed of distinct geographical and antiquarian interest. My first crossing of it in December, 1906, had furnished good reasons for the belief that this belt of wind-eroded desert, about 30 miles wide, belonged to an ancient delta of the Kuruk-daryā. While our former route lay almost due north from Camp 121, a point east of L.K., the new one, which I chose with due regard to the relative position indicated by the plane-table for L.M. and L.A., led from the south-west to the north-east (Map No. 29. C, D. 4). It thus afforded a welcome opportunity to test, by the evidence of fresh and independent observations, the conclusions previously arrived at. When discussing in *Serindia* the peculiar topographical character of this ground and its geographical interpretation,[1] I was able to avail myself of the main facts brought out by the fresh evidence obtained on my later journey. This, however, is the place to describe in detail the observations on which that evidence is based and which the map can but imperfectly record.

[1] Cf. *Serindia*, i. pp. 354 sqq.

The ground we entered after leaving the L.M. site showed at first clear signs of extreme wind-erosion: Yārdang trenches were scooped out to a depth of 8 to 12 feet, and low dunes were frequent on the terraces between them. A line of dead Toghraks coming from the north-west and bending round towards the east was passed after about two miles' march. Finds of worked stones (see List below) had grown rare after leaving L.M., and, with the exception of a single flint picked up about five miles from the site, ceased altogether beyond the line of dead tree trunks just mentioned. Farther on the Yārdang trenches became shallower, while the dunes now rising from 15 to 20 feet in height were wide apart and allowed easy progress. There were stretches of practically flat, abraded-looking ground, broken only by occasional sand-cones. The tamarisk growth that had helped to form them and still held them together was dead, except here and there, where the branches on the very top still showed life. Marks of extreme wind-erosion.

When fixing the plane-table on one of these isolated tamarisk-cones, at a direct distance of about 8 miles from Camp xcii (L.M.) we could clearly make out before us rows of dead Toghraks running from north-west to south-east and marking a broad river-course. Another branch similarly lined with a belt of dead forest was crossed about two miles farther on. Reference to the map on the 1 : 250,000 scale will show that these two dried-up channels have their obvious continuation to the south-east in two exactly corresponding belts of ancient tree growth that we crossed on our route of 1906 to the south of Camp 122. If we turn to the north-west, the direction from which the course of these old branches of the Kuruk-daryā must be traced, we find them duly represented by similar belts of dead riverine jungle shown both by my survey of 1907 and by Afrāz-gul's of 1915 near the spot where our respective routes crossed each other, in the vicinity of Camps 127a and cclxviii a.[2] From the fixing above mentioned we first caught a glimpse far away to the north of the dark outline of the Kuruk-tāgh foot-hills showing above the horizon line of the yellow expanse of bare sand and clay. The snowy rampart of the K'un-lun far off to the south, still visible in the morning from Camp xcii, was now hidden by the dust-haze that a fresh north-east breeze had since raised. Dry river-beds marked by dead Toghraks.

Beyond the strips of dead riverine forest our route led over ground where, as Fig. 140 shows, the soil was uniformly cut up by small Yārdangs, 4 to 6 feet deep, except where covered by low dunes. In its appearance this ground showed very close resemblance to that passed in 1906 near Camp 122.[3] That our route now lay in the vicinity of the latter was brought home to me at the time by the recurrence of certain characteristics observed there in 1906. Fragments of pottery, very coarse in make and evidently of neolithic origin, of which L.M.–C. xciii. 011–12 are specimens, together with a few stone remains, corresponded to similar finds made in 1906 within a short distance north of Camp 122.[4] I observed moreover the frequent appearance, for the last few miles before Camp xciii was reached, of dead reed-beds, with thick but low stubble, on the top of Yārdangs. I have already discussed in *Serindia* the significance that these reed-beds, not of very ancient appearance, may have as indicating a temporary and later submersion of this ground.[5] I have also pointed out that such a submersion at a comparatively recent period would be in full accord with certain observations made in this region by Dr. Hedin. His very interesting measurement of levels between L.A. and the Kara-koshun has shown that just about this latitude a depression extends for a distance of about two and a half miles to an average of about a metre (3′ 3·4″) below the flood level of the Kara-koshun in the spring of 1901. Neolithic relics. Dead reed-beds.

The fact that our route from south-west to north-east led almost parallel to the regular direction

[2] See Map No. 29. C. 4; also *Serindia*, Map No. 60. B. 3.

[3] Cf. *Serindia*, i. p. 360.

[4] In Map No. 29. D. 4 the entry 'Pottery debris' referring to the route of 1906 should be shifted farther south to about 1½ miles from Camp 122.

[5] See *Serindia*, i. pp. 359 sq.

Dead reeds on top of Yārdangs.

of the ' Yārdangs '—here as everywhere else in the Lou-lan area, WSW. to ENE.—had allowed us on this day to cover a total marching distance of about eighteen miles. Camp xciii was pitched in the evening close to a well-marked line of tamarisk-cones, recalling those which are often found near river-courses in the Tārīm basin. Dead reed-beds of the kind above mentioned were found occupying the tops of ' Yārdang ' trenches near the camp. Their height above uniformly eroded trough-like ground varied as much as eight feet. This clearly showed that water, such as alone could account for such reed growth, had returned here in comparatively recent times to ground where wind-erosion had previously been long at work, and that the level reached by the water during its temporary return had varied.

Ancient river branch marked by dead Toghraks.

Another interesting fact was that on resuming our march on the morning of February 10th we came, within less than a mile, to rows of dead Toghraks along a shallow bed winding with an approximate bearing from north-west to south-east. As appears from the map, this direction exactly coincides with that in which our survey of 1906 shows a strip of dead trees and reed-beds about four miles to the north of Camp 122.[6] It is significant that if we continue the same line farther to the north-west it takes us to the ' belt of Toghraks and tamarisks ' that my plane-table record of 1906 shows about four miles to the south-west of Camp 126 a on the route from the Lou-lan site L.B. to the Tārīm.[7] Here, too, as in the previous instances noted along our survey from L.K. and L.M. onwards, an ancient branch of the Kuruk-daryā is still clearly traceable on the map.

Worked stones and neolithic pottery frs.

The ground that we traversed for a distance of about six miles beyond this river-bed was a bare flat of clay, comparatively little furrowed by wind-erosion and scattered over with scanty dead tamarisk-cones and low dunes. Remains of the stone age, such as worked stones and coarse neolithic pottery, here made their appearance again, and were found with much frequency from about the fourth mile right through to the vicinity of L.A. As appears from the Descriptive List below, by far the most numerous among the worked stones were the narrow sharp-edged flakes, probably used as knife-blades, which I have already frequently referred to among the finds from the eroded area south of the Lou-lan sites.[8] Besides miscellaneous worked stones of indeterminate character, mention may be made of the scraper, C. xciii. 022; the well-made stone arrow-heads, C. xciii. 016–17, 099 (Pl. XXII); and the jade celts, C. xciii. 0141–2, 0146 (Pl. XXII).

Distribution of stone age relics.

For reasons already indicated, it is impossible to draw any definite conclusion as to the chronology of prehistoric occupation from stone age relics found in the Lop Desert on wind-eroded soil.[9] But it should be noted that such remains, whether of stone or coarse pottery, practically ceased to be found on the route we followed in 1914 from a short distance beyond L.M. until we reached the vicinity of Camp 122, and that over a corresponding direct distance of close on ten miles on the route we followed in 1906 finds of the same kind were either totally absent or very rare.[10] It appears to me probable that for some reason no longer clear this belt was but little frequented during prehistoric times and during the Han period which succeeded them, except along the route leading from the station L.A. to L.K. and thus on to the old Lop capital at Mīrān.

The first find of a datable relic and one therefore of distinct antiquarian interest occurred at a

[6] See *Serindia*, v. Map No. 60. c. 3.

[7] See *ibid.* In Map No. 29. c. 4 the corresponding entry of dead tree symbols has been omitted by an oversight. Their line ought to have been shown with the bearing from NW. to SE. also extending to the entry ' Rare pottery '.

[8] See below in Descriptive List, C. xciii. 013–15, 018–21, 024–6, 035–63, 082–98, 0100–40, 0158–62 (Pl. XXII). A number of these show worn edges, a sign of long use. Cf. also p. 184 above; *Serindia*, i. p. 357.

[9] See above, p. 197; *Serindia*, i. p. 357.

[10] I regret that I did not bring this out clearly in *Serindia*, so far as the line followed by our route of 1906 is concerned. But my recollection on this point is supported by the plane-table record of the route in *Serindia*, Map No. 60. c. 3, 4, which shows no entry of finds between latitudes 40° 11′ and 40° 19′, and also by the ' List of Objects ', *Serindia*, i. pp. 363 sqq., marking no definite find-place farther north than 6 miles from Camp 121.

distance of about five miles from Camp xciii. Here the fragment of a neatly decorated bronze plate, C. xciii. 074 (Pl. XXIII), was picked up, together with small pieces of broken glass vessels (C. xciii. 075, 080, Pl. XXIII). From this point onwards the finds of such small relics, manifestly of Han times and the century immediately following, became frequent and continued till the end of the march. Among them were glass beads (C. xciii. 030, 033–4, 077–8, Pl. XXIII); bronze arrow-heads (C. xciii. 069, 071, Pl. XXIII); a piece from the edge of a bronze mirror (C. xciii. 068); and miscellaneous small fragments of bronze, lead and iron (C. xciii. 029, 067, 070, 072–3, 076, 0144–5, 0157, Pl. XXIII). Insignificant in themselves, these relics of the historical period acquire antiquarian interest from the fact that the southern limit of the area over which they were found falls almost exactly into line, as Map No. 29. D. 4 shows, with the point where, on my route of 1906 farther west, I first came upon worked fragments of bronze and potsherds of superior make, about nine miles to the north of Camp 122.[11] These new finds thus confirm the inference I had then drawn that the area to the north of this point had in some places been occupied during historical times, and in others been at least frequently visited.

Finds of Han time relics.

As regards the area to the south, extending on Map No. 29. C, D. 4 from about latitude 40° 10′ to 40° 22′, over which no remains whatever of the historical period were traced on either of my routes, I have already in *Serindia* called attention to the fact that it includes the belt about 10 miles wide across which Dr. Hedin's levelling of 1901 showed a distinct depression.[12] I have also given in the same work what I think a likely explanation of this depression, which, taking the mean value of the measured levels, works out at an average of less than four and a half feet below the present level of eroded ground at the Lou-lan station L.A. If the portion of the deltaic area comprising this depression had been devoid of water and its river-beds dry since the end of the local stone age, as is suggested by the total absence there of datable relics from the historical period of the Lou-lan occupation, its soil would have been unprotected by vegetation and consequently exposed to wind-erosion and gradual abrasion centuries longer than the riverine belts north and south. In the latter, as the ruined settlements of L.A., L.B. and L.K., L.M., respectively prove, the river-beds must have carried water down to the first half of the fourth century and are likely to have done so intermittently somewhat longer. The greater length of time during which wind-erosion could assert its full force on the ground lying between those two belts, assuming it to have already been left dry centuries before the Lou-lan sites were abandoned, is amply sufficient to account for that difference of average level observed by Dr. Hedin in the depression referred to; for my measurements at the Lou-lan station L.A. have proved that open ground near certain ruins there has been lowered by wind-erosion to the extent, on an average, of more than one foot per century.[13]

Depression without datable relics.

The explanation here indicated, conjectural as it is, derives some support from the fact that two observations which still deserve to be noted can be readily reconciled with it. One is that the dry ancient beds traceable north of the latitude of L.M., up to the line where on both my routes relics of the historical period were first met with, were less clearly defined than those which we crossed on our way from that line to the Lou-lan station L.A. If the river-course of the area within the limits just mentioned had ceased to receive running water since neolithic times, i. e. centuries before the settlements of the Lou-lan sites and of L.M., L.K. were abandoned, the consequent longer exposure to wind-erosion would suffice to explain why the progress made in the effacement of the old beds was here greater. The other observation relates to the fact that the depression indicated by Dr. Hedin's line of levels does not extend over the southern portion of that area. This

Difference in effects of wind-erosion.

[11] Cf. *Serindia*, i. p. 361.

[12] See *ibid.*, i. p. 359; Hedin, *Central Asia*, ii. pp. 234 sqq., 314 sqq., with Pl. 36, 37, 59.

[13] See *Serindia*, i. pp. 371, 375, 388, 390, 392, 399; also below, p. 215.

is easy to understand if we bear in mind that the effects of wind-erosion in the ancient delta of the Lop Desert, as measured by the depth of the Yārdang trenches, grow distinctly less as we proceed farther south, i. e. farther away from ground lying close to the foot of the Kuruk-tāgh glacis. This difference in the result of the wind's erosive action may itself, I believe, be safely attributed to the fact that the sand which serves as the abrading instrument in that action is a more powerful factor northward, where it consists of coarse grains swept down from the gravel glacis of the Kuruk-tāgh, than in the south, where it is made up mainly of locally disintegrated loess dust.

Crossing of ancient river-bed.

Less than two miles beyond the place where was found the above-mentioned bronze ornament, we came upon a depression winding from WNW. to ESE. and marking an unmistakable ancient river-bed (Fig. 143). Among the rows of dead Toghraks which were to be traced on either side of it, some trunks still stood upright, as seen in the background of the photograph. The width of the bed was about 150 yards, and the divergence of its direction from that which the Yārdang trenches invariably follow made it easily recognizable. The line of high tamarisk-cones that we passed in 1906, just before finding the first relics of the Han period,[14] lay exactly in the continuation of this dry river-bed to the WNW.[15] Not far from the north bank of it we picked up a well-preserved iron awl, C. xciii. 011.[16]

Finds of coins and metal objects.

Beyond this the ground was cut up into a maze of short Yārdang trenches, reaching a depth of 10 feet or so, as shown by the photographs (Figs. 141, 142) taken at a point about eight and a half miles marching distance from Camp xciii. Here three Chinese coins of the Han type were picked up in quick succession. One is an inscribed *Wu-chu* piece; another a much-clipped specimen of the same; while the third, also clipped, still shows a trace of the legend *Huo-ch'üan*, introduced by the usurper Wang Mang about the time of Christ. Half a mile farther on, after passing an ancient river-bed, much effaced, with rows of dead trees all lying on its banks,[17] we entered ground that had been much eroded and was almost bare of ancient vegetation. This for about three miles yielded finds of worked stones, miscellaneous fragments of metal objects, glass beads and potsherds in abundance. To the north the horizon was bounded by a line of high tamarisk-cones. But when after about twelve miles' march I climbed an isolated cone about 30 feet high at some little distance from this line, the familiar Stūpa of the Lou-lan station L.A., together with the neighbouring ruins, could be seen quite clearly to the NNE. The glow of the setting sun was reflected by them just as it was by the towers of the Tun-huang Limes when I searched for them years before on my second journey. It was a great relief to be assured once again by that landmark that we had steered a true course across this dead and desolate desert.

Line of tamarisk-cones along dry bed.

The line of close-set dead tamarisk-cones, 20–30 feet in height, proved on close approach to mark an unmistakable river-bed (Fig. 144), with a fringe of dead Toghraks, many of them still upright, on either bank. The bed, running approximately from west by south to east, was 16 to 18 feet deep and measured 146 yards in width where we crossed it. Low dunes covered its bottom in places, and here and there small tamarisk-cones, all dead, rose within it. They had obviously

[14] See *Serindia*, i, p. 361.

[15] In Map No. 29. D. 4 the row of dead tree symbols and the broken line marking the old bed should have been drawn with a more westerly bearing. At the corresponding point of the 1906 route the 'ancient site' symbol ought to have been placed above, instead of below, the map entry 'Ancient potsherds and bronze fragments'.

[16] The appearance of this little implement makes it difficult to feel sure about its not having been dropped perhaps by one of Dr. Hedin's or Mr. Tachibana's men who may have crossed this ground.

[17] This bed with the symbols of dead Toghraks ought to have been shown on the map just to the north of the entry 'Han coins'. Its position and bearing, NW.–SE., corresponds exactly with the ancient channel, marked by a line of dead Toghraks, which our survey of 1906 recorded about a mile and a half south of Camp 123 (see Map No. 29. D. 4 and *Serindia*, i. p. 361), and which has its probable continuation in the belt of dead trees shown by the map close to Camp 126 a on the route to the Tārīm; cf. *Serindia*, v, Map No. 60. C. 3.



140. CAMELS CROSSING WIND-ERODED GROUND, ABOUT 1½ MILES NORTH-EAST OF CAMP XCII.



141. YARDANG RIDGES AND TRENCHES, ABOUT 1½ MILES NORTH-EAST OF CAMP XCIII.



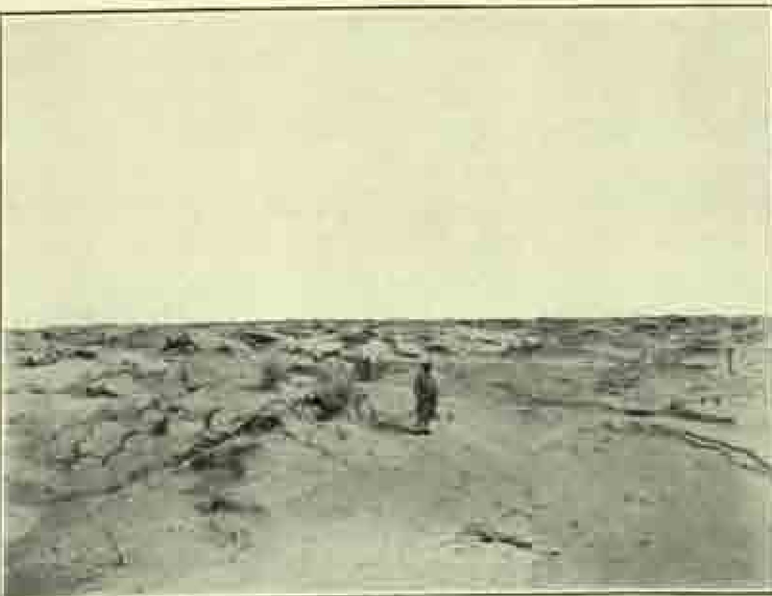
142. VIEW TO SOUTH-WEST ACROSS ERODED GROUND BEYOND CAMP XCIII.



143. DEPRESSION MARKING ANCIENT RIVER-BED ABOUT 7 MILES NORTH-EAST OF CAMP XCIII.



144. ANCIENT RIVER-BED BETWEEN LINES OF TAMARISK-CONES ABOUT 7 MILES SOUTH OF L.A. STATION, LOP DESERT.



145. ANCIENT WATER-COURSE WITH LIVING TAMARISKS NEAR L.I. SITE, LOP DESERT.



146. EFFECTS OF WIND-EROSION NEAR RUINED STŪPA, L.A. XI, LOU-LAN STATION.



147. CLEARING OF REFUSE DEPOSIT BETWEEN RUINED QUARTERS, L.A. V AND L.A. VI, LOU-LAN STATION.



148. RUINED STRUCTURE, L.A. II, AND GROUND TO SOUTH, SHOWING DEAD TAMARISK GROWTH IN DEPRESSION.

grown up during some period after the river-bed had been left dry but when it still received subsoil water. The general appearance of this bed closely resembled that of stretches of the main Kuruk-daryā higher up at the numerous points where I saw it in March, 1915, south and south-east of Yārdang-bulak.[18] A look at the map shows that this well-marked dry river-course lies exactly in the direction of the line of dead tamarisk-cones, obviously riverine in character, which was passed in 1906 about a mile to the north of Camp 123. My plane-table traverse of the route followed on the journey to the Tārīm in the last days of December, 1906, records a 'dry lagoon' with banks 20 feet high amidst strips of dead jungle, about three miles to the NE. of Camp 126 a.[19] This in all probability represents a broad reach of the same ancient water channel higher up.

March to Stūpa of Lou-lan station.

The light was fading by the time the camel train had caught us up at this bed. Yet though I knew beforehand the difficult character of the much-eroded ground which still separated us from our goal at the ruined station, I decided to reach it that night. It meant a day saved for the work before us, and for the camels the prospect of reaching a little sooner the rest and grazing they badly needed. So we pushed on ahead of them. For about two miles we traversed a much-furrowed waste of bare clay, with scarcely any remnants of dead vegetation; but worked stones in plenty continued to be picked up until the light failed. After a weary tramp of an hour and three-quarters across terribly eroded ground, we reached another dry river-bed, this time a very winding one and about 200 yards wide. Among the fallen trees lining its banks the men with me thought they could recognize two Jigda (Eleagnus) trees. Darkness had fallen by the time we had crossed this bed, but it was soon relieved by a glorious full moon. I had a bonfire lit on an isolated tamarisk-cone to guide the camels far behind, while we struggled on across the close-set Yārdang ridges and trenches to where the ruined Stūpa of L.A. loomed ever bigger before us in the moonlight. At last, after a total tramp of twelve hours, during which we had covered some nineteen miles of marching distance, I found myself once again amidst the silent ruins to which my thoughts had turned so often since the happy days I spent at work there in December, 1906. A big fire of ancient timber, lit on the terrace bearing the Stūpa, threw the familiar features of the old deserted Chinese station into weird relief, and eased the long wait till the hard-tried camels came in, which they did safely hours later.

First zone beyond Tārīm lagoons.

Before I proceed to give an account of the fresh explorations for which the Lou-lan station served as base, it will be convenient to sum up briefly the results, as regards the physical aspects of this area and their relation to periods of human occupation, yielded by the surveys made, both on this and the previous journeys across the Lop desert, between the Tārīm and the Lou-lan Site. Proceeding northward from the terminal course of the Tārīm two main zones are easily distinguished. In the southern zone, which extends from the Kara-koshun marshes to the north-east as far as the approximate latitude of 40° 4′, we find at first lagoons, like the Chainut-kōl, that receive water more or less regularly from the annual floods of the Tārīm. Beyond these there stretches a series of small depressions into which water is carried only by exceptional floods at long intervals, the lakes thus formed being gradually reduced by evaporation to mere salt pools and finally left dry. The ground extending along these terminal lagoons over a distance of about 10 miles or less receives sufficient moisture to support desert vegetation such as reeds and tamarisks. But nowhere would the configuration and character of the ground permit of cultivation and permanent settlement. To the east spread the marshes of the Kara-koshun, and beyond them the salt-encrusted wastes of the ancient dried-up Lop sea-bed, still likely to be reached on its margin by inundation from the Tārīm when the spring floods are exceptionally high. To the west, high dunes cover the whole ground right away to the Tārīm, whose course here lies from north to south.

[18] See Map No. 29. A, B. 3; below, Chap. XX. sec. iii.

[19] Cf. *Serindia*, i. p. 450; v. Map No. 60. C. 3.

Zone of wind-eroded dead delta.

Near the northern limit of this zone where flood water penetrates but rarely, we meet with the first patches of ground left bare of living vegetation and thus exposed to wind-erosion. Beyond the line of the last dry lakelets begins the second zone, comprising a now utterly waterless desert. Here wind-erosion, with the drift-sand that serves as its powerful instrument, is the predominant factor in determining the present surface conditions of the ground. Its excessive action in this zone is primarily due to the strength and great frequency of the ENE. winds drawn into this, the lowest, portion of the Tārīm basin by 'aspiration' from the barren plateaus of the Pei-shan and southern Mongolia. It is further facilitated by the nature of the soil, which here as throughout the bottom of the Tārīm basin is formed of the clay sediments left behind, perhaps since tertiary times, by a huge inland sea.

Physical characteristics of dead delta.

Apart from the wind-sculptured soil, the dry beds of old river-courses, lined on their banks by strips of dead forest, are the most characteristic feature of this zone. Their direction unmistakably proves them to have formed part of the delta in which the Kuruk-daryā once carried its waters into the great salt-encrusted waste eastwards, occupying the terminal basin last filled by the much more ancient Lop Sea. The dried-up marginal marshes of this basin, which Afrāz-gul traversed in February, 1915, form the eastern limit of the zone, while westwards it is bordered by the great dune-covered area that divides the old Kuruk-daryā delta from the riverine belt of the Tārīm. To the north the zone extends right up to the foot of the Kuruk-tāgh glacis, and thus includes also that portion of the ancient delta which lying north of the Lou-lan sites remained outside the surveys discussed in the present chapter.

Belt occupied in historical period.

With the zone just described remains of human occupation permit us to distinguish three belts. In the southernmost, which extends along the line clearly marked from north-west to south-east by the ruins of L.R., L.M., L.L., L.K., we have definite archaeological evidence that the prehistoric occupation during successive periods of the stone age was followed by settlements which were contemporary with those of the Lou-lan sites, and probably survived like these till the beginning of the fourth century A.D. Their existence indicates that the southernmost branch or branches of the Kuruk-daryā traced in this belt carried water during the first centuries of our era. The riverine tract thus watered in historical times appears, however, to have been a narrow one.

Belt not occupied in historical times.

The second belt to the north comprises ground where, though ancient beds are here also traceable at intervals, evidence of human occupation is confined to remains of the stone age, and these, moreover, are less frequent than in the adjoining belts north and south. The width of this belt, which may be described as extending from about 40° 12′ lat. to 40° 22′ lat., is roughly 16 to 17 miles. The conclusion seems justified that already in the earliest historical period to which we can go back on this ground this portion of the ancient delta lacked sufficient water for cultivation and permanent settlement. The earlier drying up of this portion and the consequent longer exposure of its ground to wind-erosion may account for the depression shown here by Dr. Hedin's line of levels, as well as for the greater effacement of the old river-beds.

Belt watered by Kuruk-daryā in Han times.

The third belt extends from about 40° 22′ lat. northward to the gravel glacis of the outermost hill range of the Kuruk-tāgh. Within it are to be found the Lou-lan sites explored in 1906 as well as the remains of the same period traced in 1914. They all afford clear proof that one or two at least of the northern branches of the Kuruk-daryā carried sufficient water during the early centuries of our era to permit of irrigation. But here also abundant relics of the stone age are to be found, showing that the whole of this belt was sufficiently watered in prehistoric times to render nomadic occupation possible. From coins and other approximately datable relics discovered in localities situated at an appreciable distance from those sites, it seems safe to conclude that physical conditions, similar to those still observed now on the Tārīm, permitting of nomadic life based on fishing, hunting,

and grazing, continued over most of this belt down to the early part of the fourth century A.D., when the Lou-lan station and the old Chinese route leading through it were finally abandoned. Evidence to be discussed in the next chapter seems, in fact, to suggest that no great length of time intervened in this region between the latest neolithic civilization and that contemporary with the assertion of Chinese control in the Han period, and that the physical conditions affecting this belt underwent no very considerable change in the interval.

OBJECTS FOUND BETWEEN SITE L.M. AND CAMP XCIII

L.M.-C. xciii. 01. Stone core, light brown, from which long narrow blades have been struck. Length 1¾".

L.M.-C. xciii. 02-10. Nine frs. of stone flakes, various shapes and stones. Gr. M. 1 3/16".

L.M.-C. xciii. 011-12. Two frs. of pottery, very coarse and badly washed. Reddish-black clay, eroded. Gr. M. 2".

L.M.-C. xcii-xciii. 01. Sandstone hone, dark grey, with one rounded end, other broken. Incised hole at rounded end. As *Ser.* i. p. 444, L.B. iv. 007. 4" × 1" × ⅝". Pl. XXVI.

L.M.-C. xcii-xciii. 02. Fr. of jade, rough, green, irregular shape. 2⅛" × 1" × ⅝".

OBJECTS FOUND BETWEEN CAMP XCIII AND L.A. STATION

C. xciii. 01. Fr. of iron, split and oxydized. 1¼" × 1 1/16" × ⅜".

C. xciii. 010. Stone blade, long, narrow, dark greenish-grey; two-edged, much worn; bulb of percussion at end of under face. Broken at one end. Length 2".

C. xciii. 011. Iron awl, sq. in section, set in wooden handle. Length of whole 3¼", of handle 2¼", gr. diam. of handle ⅝".

C. xciii. 012. Fr. of pottery, flaked from thicker piece; red clay. Probably wheel-made; black inside. 1½" × 1 3/16" × 3/16".

C. xciii. 013-15. Three stone blades. *013*, broad; two ridges, one split away to form shoulder, the one-sided tang being afterwards retouched. Long edges retouched and roughened. Broad end chisel-pointed. Scraper (?). Dark greenish grey. Sand-worn. Length 2⅝"; tang 1 1/16"; width of point ⅝".

014, narrow; three ridges, the two outer close to cutting edges; bulb of percussion at end of lower face. Dark sage green. Worn and broken at one end. 1⅝".

015, broad; two distinct ridges and two edges. Bulb of percussion on lower face. Yellow-brown. Edges worn. Broken at one end. 1 11/16".

C. xciii. 016-17. Two leaf-shaped stone points; as L.I. 012. Dark grey. *016*. 2¼" × ⅝" × ¼"; *017*. 1¾" × ⅝" × 3/16". Pl. XXII.

C. xciii. 018-19. Two stone flakes (blades), long, narrow; dark grey and black. Gr. length (*018*) 1⅝".

C. xciii. 020-1. Two stone flakes (blades), wide, flat; dark grey and brown. Gr. M. (*020*) 1⅝".

C. xciii. 022. Stone scraper (?), fine dark green; extremely fine grain; boldly worked to irregular fine edges, one end broad and blunt. 1¼" × 1" × 7/16".

C. xciii. 023. Fr. of chert (?), dark grey; marks of long flakings on one side, indeterminate. Gr. M. 1⅜".

C. xciii. 024-6. Three frs. of stone flakes (blades), long, narrow; dark grey, yellow-brown, and red. Gr. length ⅞".

C. xciii. 027. Fr. of carnelian jewel or seal with chamfered edges. ½" × ⅜" × ⅛".

C. xciii. 028. Stone hemisphere, stratified grey and marbled white. Diam. of base ⅝", h. ⅜".

C. xciii. 029. Fr. of iron, oxydized. 2" × 1⅛" × ¼".

C. xciii. 030. Fr. of glass bead, spherical, striated blue and white. Diam. ⅜".

C. xciii. 031-2. Two frs. of glass, pale yellow, translucent. Gr. fr. ½" × ⅜" × ¼".

C. xciii. 033-4. Two glass beads, gilded, double-bulb type. Larger ⅜" × ¾". Pl. XXIII.

C. xciii. 035-63. Twenty-nine stone blades, long, narrow; black grey and yellow-brown stone. Mostly small frs. Gr. fr. (*063*) 2 1/16" × ½" × ⅛".

C. xciii. 067. Fr. of bronze rod, straight, corroded. Length 2¼", diam. ⅛". Pl. XXIII.

C. xciii. 068. Fr. of edge of bronze mirror. Raised plain rim, with band of rayed orn. within. Chord 1⅝", width ⅝". Pl. XXIII.

C. xciii. 069. Bronze arrow-head, oval, two-edged, as Kucha. 062, Pl. CXI, but shorter. Length 1", gr. width 9/16". Pl. XXIII.

C. xciii. 070. Lead disc, drilled through centre. Diam. ⅝", thickness 1/16". Pl. XXIII.

C. xciii. 071. Fr. of bronze arrow-head, flat-sided triangular, with hexagonal shaft, as L.J. 01, &c. ⅝" × ¼". Pl. XXIII.

C. xciii. 072. Head of bronze pin (?), cylindrical, tapering from centre. Small hole in one end. Corroded. Length ⅜", gr. diam. ¼".

C. xciii. 073. Flat strip of iron, broken both ends, bent at one. 1⅝" × ⅜" × ⅛". Pl. XXIII.

C. xciii. 074. Fr. of bronze plate; convex surface decorated with curved chevron border and radiating lines of small dots, in slight relief. One edge turned over to back, and part of adjoining edge. $\frac{7}{8}$" × $\frac{1}{2}$" × $\frac{1}{32}$". Pl. XXIII.

C. xciii. 075. Fr. of rim of glass vessel, in two pieces; opaque, bronze colour glass. $\frac{7}{8}$" × $\frac{3}{16}$". Pl. XXIII.

C. xciii. 076. Fr. of bronze wire, sq. in section, slightly curved. Length $\frac{13}{16}$", width $\frac{1}{16}$".

C. xciii. 077–8. Halves of two glass beads, echinus-shaped. *077*, deep yellow, translucent; *078*, light blue, translucent. Surface corroded. Diam. $\frac{1}{2}$" and $\frac{9}{16}$". Pl. XXIII.

C. xciii. 079. Carnelian bead, red to yellow, spherical. Diam. $\frac{1}{4}$". Pl. XXIII.

C. xciii. 080. Fr. of glass, pale green, translucent. $\frac{7}{8}$" × $\frac{5}{16}$". Pl. XXIII.

C. xciii. 081. Fr. of glass bead, flattened bulb, translucent yellow. Diam. *c.* $\frac{3}{8}$".

C. xciii. 082. Fr. of stone flake, hard grey-brown; shape indeterminate. Gr. M. $1\frac{9}{16}$".

C. xciii. 083. Stone blade, close grain, dark grey; slightly curved downward and outward. Lower face smooth with bulb of percussion at one end. Single ridge partly median but running towards back near one end. Single edge on concave curve, worn. Back, flattened and changing its direction for about $\frac{1}{3}$ of its total length. $1\frac{9}{16}$".

C. xciii. 084. Fr. of stone blade, dark grey-green, close-grained. Double-edged; two ridges. $\frac{9}{16}$".

C. xciii. 085. Stone point, dark grey, close grain; curved leaf-shaped. Lower face smooth, with bulb of percussion at butt. Upper face has two ridges converging towards point. Length $1\frac{5}{16}$", gr. width $\frac{11}{16}$".

C. xciii. 086. Fr. of stone blade, dark green-grey, close-grained. Double-edged. Bulb of percussion on lower face. Median ridge. Worn. $1\frac{1}{4}$".

C. xciii. 087. Stone implement; dark grey, close-grained. Slightly tapering at one end to flat rounded point. Other end cut askew, the acute angle slightly rounded and sharpened. Median ridge and two incomplete side ridges. Lower face smooth, with bulb of percussion. Length $1\frac{1}{4}$", gr. width $\frac{1}{2}$", gr. thickness $\frac{5}{32}$".

C. xciii. 088–98. Eleven frs. of stone blades: dark grey, green-grey, grey-brown and yellow-brown; close-grained. Double-edged. Lower faces smooth; on upper faces one or more ridges. Gr. fr. $1\frac{3}{8}$".

C. xciii. 099. Stone arrow-head; dark grey-green, close-grained. Leaf-shaped; flaked on one side; worked edges on both. Length 1", gr. width $\frac{3}{4}$".

C. xciii. 0100–120. Twenty-one stone flakes; mostly chert blades, or frs. of. All grey of various shades excepting those otherwise noted below, and of close grain; single, double and triple ridged. *0101*, small fr. of narrow blade, much worn on edges. *0102*, irreg. with part of large bulb of percussion on under face and fan fracture on upper. *0103*, short and broad, concave longitudinally on under face. *0110*, brown jasper, narrow, with high median ridge, retouched along its whole length. All clumsily shaped, long and narrow, strongly curved under at one end. *0114*, long and narrow fr.; small bulb of percussion on lower face; flat on upper face with two ridges near worn edges. *0119*, fr.; curved laterally to point, thin and roughly flaked on upper face. *0120*, fr.; dark grey-brown, flat on both faces with well-defined bulb of percussion on lower; slightly tapering towards bulb; single edge worn; back flat. Gr. M. *(0114)* $2\frac{13}{16}$"; sm. M. *(0101)* $\frac{5}{8}$". Pl. XXII.

C. xciii. 0121–40. Twenty stone flakes, mostly frs. of blades; dark grey, green-grey and grey-brown; close grain. *0121*, high median ridge, broken; edges worn. *0122*, median ridge; edges worn. *0123*, two edges, two ridges near one edge, one near other. *0124*, single (?) edged; two ridges near back; one end worked into round chisel point. *0126*, *0127* and *0129*, edges much worn. *0120*, upper surface flat; ridges near edges. *0131–5*, edges much worn. *0137*, upper face retouched, almost removing ridges. *0140*, thin and flat, used along both edges. Gr. fr. *(0121)* $2\frac{3}{16}$", sm. *(0133)* $\frac{3}{4}$". Pl. XXII.

C. xciii. 0141. Jade celt, with well-sharpened edge, chipped. Upper part rough and broken. Length $2\frac{7}{16}$", gr. width $1\frac{3}{16}$", gr. thickness $\frac{1}{2}$". Pl. XXII.

C. xciii. 0142. Stone celt, roughly chipped, thin, long triangular; apex broken off; dark grey mottled stone. All three edges sharpened; butt slightly curved laterally. Length $1\frac{7}{8}$", gr. width $1\frac{1}{8}$", gr. thickness $\frac{3}{16}$". Pl. XXII.

C. xciii. 0143. Chip of hard stone, olive green. Gr. M. 1".

C. xciii. 0144–5. Two frs. of bronze, partly melted. Gr. M. $1\frac{1}{8}$".

C. xciii. 0146. Jade celt; green, flat; well-sharpened edge. Length $1\frac{7}{16}$", gr. width $1\frac{3}{16}$", gr. thickness *c.* $\frac{3}{16}$".

C. xciii. 0148. Chip of hard stone, olive green, as C. xciii. 0143. Gr. M. $1\frac{3}{16}$".

C. xciii. 0149. Stone core, dark grey, from which long narrow blades have been flaked. Length $1\frac{1}{8}$".

C. xciii. 0150. Chip of hard stone, olive green, as C. xciii. 0143, 0148. Gr. M. $\frac{15}{16}$".

C. xciii. 0151. Stone scraper (?), hard dark grey, cut flat. Slightly curved; flat back partly worked and partly broken; butt worked flat; opposite end rounded from below and roughly chipped to wavy edge which ends in a sharp point where it meets back. $2\frac{1}{4}$" × $\frac{7}{8}$" × $\frac{1}{4}$".

C. xciii. 0152. Fr. of pottery, coarse gritty clay, red inside, dark grey outside. Sand-worn. Gr. M. $1\frac{1}{2}$".

C. xciii. 0153. Fr. of worked stone, hard black. Thick at butt; opposite end worked into thumb-nail edge. Smoothed and blunted by sand wear. Gr. M. $1\frac{1}{4}$".

C. xciii. 0154. Fr. of worked stone, rounded and rubbed

into facets; hollow and spongy inside; edges round hollow worked flat and smooth by rubbing on a flat surface. Hard, black. Perhaps a burnisher. H. $\frac{1}{2}$", diam. of flat side $1\frac{1}{16}$".

C. xciii. 0155–6. Two frs. of pottery, coarse, gritty. *0155*, red, black exterior; one edge chamfered. Probably part of bottom and side of a vessel. *0156*, light grey throughout. Gr. M. (*0156*) $2\frac{1}{4}$". Both weathered and sand-worn.

C. xciii. 0157. Fr. of iron, oxydized. $2" \times 1\frac{1}{4}" \times \frac{1}{4}"$.

C. xciii. 0158–62. Five stone flakes and frs. *0158*, brown jasper, perhaps used as end-scraper. *0159*, yellow-brown, triangular in general form; high median ridge; retouched on edges. *0160*, grey-brown, showing bulb of percussion. *0161*, hard, black, showing bulb of percussion with conchoidal rings; under face retouched at one end. *0162*, long narrow blade, greenish stone; edges worn. Gr. M. (*0158*) $1\frac{7}{16}$". Pl. XXII.

C. xciii. 0163–6. Four frs. of pottery. *0163*, red, gritty; outer surface flaked; inner surface bears marks suggesting wheel-throwing. *0164*, red at inner surface, grey at outer; gritty; weather and sand-worn. *0165*, red, inner and outer surfaces blackened; gritty and hard. Probably hand-made. *0166*, similar to 0165 but inside surface red. Sand-worn. Gr. length $1\frac{3}{4}$", gr. thickness $\frac{3}{8}$".

C. xciii.–L.A. 01–7. Seven jasper and chert blades, long, narrow; single and double-ridged; yellow-brown, grey, black, and dark red stone. Gr. length (*03*) $2\frac{1}{8}$".

C. xciii.–L.A. 08. Fr. of soft stone, grey and white, semi-cylindrical. Length $1\frac{1}{4}$", diam. $\frac{1}{2}$".

C. xciii.–L.A. 09–11. Three jasper arrow-heads (?). *09*, chipped sq. one end, greenish-grey. Length $1\frac{1}{8}$". *010*, pointed each end, yellow-brown. Length $1\frac{1}{4}$". *011*, long leaf-shaped, as L.I. 012, &c.; olive green. Length $2\frac{3}{16}$".

CHAPTER VII

REMAINS OF ANCIENT LOU-LAN

SECTION I.—WORK RESUMED AT AND AROUND THE LOU-LAN SITE

Purpose of return to Lou-lan Site.

THE immediate object of my return to the Lou-lan Site, L.A., was to search its vicinity for such further ruins as might have escaped us on my visit seven years before, owing to want of time and the deceptive nature of the ground in this wind-eroded desolation. In order to assure a fair chance of success for this programme it became necessary to establish our base camp at the ancient station and thence to push out reconnaissances into previously unexplored portions of the adjoining desert. Accordingly on the morning of February 11th, the day following our arrival, all camels but a few needed for the extended reconnaissance planned north-eastwards were sent off under Tokhta Ākhūn's guidance to Āltmish-bulak, at the foot of the outermost Kuruk-tāgh, there to enjoy grazing for a few days and a drink from the ice of the salt springs.

Reconnaissance to north-east.

It was to the east and north-east that I was particularly anxious to have a search made for any clue to the line followed by the ancient Chinese high road coming from the side of Tun-huang. I therefore entrusted this important reconnaissance over wholly unknown ground to Afrāz-gul; for previous experience had given me confidence in his energy and power of keen observation. Meanwhile my own stay at L.A. enabled me to turn my diggers to profitable work on ancient deposits of refuse within the station, which owing to their greater depth or for other reasons had escaped attention during our former hurried visit. At the same time it offered a chance for a much closer survey of the site than had previously been possible.

Renewed survey of Lou-lan station.

The results yielded by this renewed survey have been fully utilized already in the detailed description contained in Chapter XI of *Serindia*, which was written after my return from this journey.[1] There is, therefore, no need to record them here separately. But I may point out that it was solely this fresh survey, aided by the experience I had gained, subsequently to my first visit, at other wind-eroded sites far away to the east, which allowed me definitely to trace the position of the ramparts that once enclosed the fortified Chinese station. The extreme force with which wind-erosion has operated at this site, since its abandonment early in the fourth century of our era, could scarcely be better illustrated than by the fact that in 1906 I had been able to recognize the scanty remnants of only those two wall lines which, running from east-north-east to west-south-west, lay in the prevailing wind direction and had thus escaped complete effacement. Of the wall faces once running at right angles to these and completing the quadrangular enclosure of the station I had been unable on that occasion to discover any remains, and it was only by a minute re-examination of the ground that I now succeeded in establishing their exact position as shown in the revised plan to be found in *Serindia*.[2] The photographs reproduced in Figs. 152–5, 157, will help to illustrate the results of this second survey, as recorded in *Serindia*.[3]

[1] See *Serindia*, i. pp. 370 sqq. [For an assumed Chinese name of L.A. see M. Maspero's App. *A*.]

[2] Cf. *ibid.*, i. pp. 386 sqq.; iii. Pl. 23.

[3] Fig. 152 shows the surviving northern segment of the east (or more strictly east-north-east) wall foundation in its whole length of about 80 feet, as seen from the west. In Fig. 157 the north end of the same wall segment is seen, with the layer of tamarisk brushwood which has prevented complete erosion. On the right appears a small tamarisk-cone which had grown up later on wind-eroded lower ground. Reference to the measuring rod in the photograph shows that the ground level near by has been lowered by at least a further

Before I describe the finds that rewarded the fresh examination of the ancient refuse heaps, it will be convenient to refer briefly to the supplementary photographs which I secured of the ruins. Fig. 151 shows the remains of the large 'Ya-mên'-like structure L.A. II[4] in the foreground and the Stūpas L.A. x, xi in the distance. In Fig. 150 attention may be called to the dead tamarisk growth covering a small cone on the deeply eroded ground on the right. This is of interest; for, as previously noted, such remains of vegetation, at a level reduced by wind-erosion considerably below that of the ancient surface, furnish evidence of the temporary return of moisture centuries after the site had been abandoned and lost the protection of living vegetation.[5] The dead tamarisks which another view of the foreground to the south of L.A. II (Fig. 148) shows on a level even lower belong probably to a still later period. The depth to which the ground has been excavated by wind-erosion around certain structures of the site, as much as 30 to 35 feet below the original level of the third century, is strikingly demonstrated by the photographs, Figs. 146, 156. They show the ruined Stūpas x and xi, raised as they now appear on high terraces. The strata of clay laid bare on the sides of the latter are of geological interest as attesting successive periods of sedimentary deposition.

Photographs of ruined station.

While small groups of men were detached on February 12th and 13th to search the ground in different directions for unexplored remains, I employed the rest of the labourers to clear away refuse deposits within the ancient station. Under a thin layer of drift-sand a large heap of consolidated refuse was discovered between the rush-wall quarters marked L.A. vi in the site plan of *Serindia* (Pl. 23) and the almost completely eroded structure v (Fig. 147).[6] It was from 2 to 3 feet in thickness and consisted mainly of reed-straw and other stable refuse. But amidst this we recovered a considerable number of Chinese records, on wood and paper, including several complete slips and a portion of a rectangular cover-tablet with Chinese inscription, besides a paper fragment in Early Sogdian script. Among the miscellaneous relics found here may be mentioned a wooden seal-case, L.A. iv. v. 03 (Pl. XVI), of a type closely resembling the seal-cases found by me along the Tun-huang Limes; a well-made but much-repaired leather shoe, L.A. iv. v. 01 (Pl. XXVII); a sheath-like object in very fine silk, L.A. iv. v. 014; fish-bones, L.A. iv. v. 018–19; and numerous fragments of silk and woollen fabrics. A few Chinese slips (L.A. vi. i. 1–4) were recovered in one of the rooms built of rush-walls in the structure immediately to the west of this refuse heap, while from another part of these quarters came the miscellaneous small implements shown in the List below under L.A. vi. v.

Finds in refuse heaps near L.A. v.

Encouraged by these finds, I had the big area of refuse, L.A. vi. ii, extending between L.A. vi

5 or 6 feet since the growth of this tamarisk-cone began. In the same fig. is seen in the foreground the debris of heavy timber which may mark the last remains of the gate leading through the east wall (cf. *Serindia*, i. p. 388).

Fig. 154 shows the much smaller terrace bearing the scanty remnant of the southern segment of the same ENE. wall face and lying quite close to what was the south-east corner of the circumvallation.

Fig. 153 exhibits the few portions of the northern (strictly west-north-west) face where remains of the wall foundation, in the shape of tamarisk fascines, are still traceable, marking the original ground level. The small dead tamarisk stems in the foreground of Fig. 153 are of interest. They had grown up and died young on ground which had been eroded already to a depth some 20 feet below the original level, presumably at a time when subsoil water had again temporarily approached the site.

In Fig. 150 we see the two small clay mounds that alone survive to indicate the line followed by the western wall. The timber debris strewing the ground between them probably marks the position of the gate that once led through the middle of the western wall face (cf. *Serindia*, i. p. 387).

Finally Fig. 155 shows the remnants of the southern rampart, the one least difficult to trace (see *ibid.*, i. p. 386), as seen near the south-western corner.

[4] For its detailed description cf. *Serindia*, i. pp. 375 sqq.

[5] Cf. above, pp. 183, 205 sq.; *Serindia*, i. p. 390.

[6] Owing to a misapprehension arising from the fact that I had, when I revisited the site, no copy of the plan of the eroded structure made in 1906, the finds made in this refuse heap have been marked erroneously with the 'site-mark' L.A. iv. v. This has been retained in the Descriptive List, though the correct mark of the structure which the refuse heap adjoins is L.A. v.

Refuse at L.A. VI. ii searched afresh.

and L.A. III, carefully searched afresh and with ample reward for this unsavoury labour. As recorded in *Serindia*,[7] it had on the previous occasion been impossible to remove these big accumulations of dirt, and in turning over their layers some forty more records on wood and paper were recovered. Most of them were fragments of Chinese slips or paper documents. But in addition to a number of complete Chinese slips the fresh haul comprised also a small rectangular cover-tablet (L.A. VI. ii. 057, Pl. XVIII) inscribed in Kharoṣṭhī, which judging from its shape appears to have served as a lid to a box,[8] as well as a novelty in the shape of a small silk bag inscribed in Kharoṣṭhī (Pl. XVII).[9] Among miscellaneous objects from the same large rubbish-heap it will suffice specially to mention the well-preserved fragment, L.A. VI. ii. 05 (Pl. XLIII), of a loom-woven textile decorated with a floral pattern; a neat little bag in crimson silk, L.A. VI. ii. 06; various small wooden implements; a piece of green-glazed pottery, L.A. VI. ii. 017, &c.

Refuse near dwelling L.A. IV.

Considerable refuse deposits, not previously examined, were traced also near the large dwelling L.A. IV situated to the south of L.A. VI.[10] From those to the south-east, x, several Chinese records were brought to light, including a complete paper document of large size in excellent preservation. Among the miscellaneous objects found here and in the rubbish layers, xi, to the west and south-west of the dwelling, the remains of a horn saddle-tree, obviously for use on a donkey, L.A. V. x. 01 (Pl. XVI); some pads of woollen fabric and felt, L.A. V. x. 05–8; a piece of basket-marked grey pottery, L.A. V. x. 013 (Pl. XXVII), closely corresponding to the common type of Han pottery on the Tun-huang Limes, may be specially mentioned.

Miscellaneous finds behind 'Yamên'.

On the narrow strip of ground along the north side of the main wall in the 'Ya-mên'-like building L.A. II, running at the back of the brick-built rooms L.A. II. ii.–iv,[11] some consolidated refuse had previously escaped notice. Erosion had left little of it, but there were some interesting finds among the layers, which consisted mainly of camel-dung and reed-straw. The timber-and-wattle built room II. vi had attracted my attention in 1906 by its superior construction, and the high sitting platform and panelled window which it comprised;[12] close to this room were found some much-decayed fragments of painted wall plaster. The specimen brought away, L.A. II. 04, shows remains of a geometrical pattern. The interest of these plaster fragments lay in their containing wheat-straw, conclusive evidence of cultivation having been carried on in the vicinity of the ancient station. The fragment of a carved wooden frame, L.A. II. 05 (Pl. XVI), also found there, is of interest, as the decorative pattern of lozenges filled with four-petalled flowers shows a very close resemblance to designs common to ornamental wood-carving both of the Lou-lan ruins L.B. and the Niya Site.[13]

Documents in Chinese and other scripts.

We also recovered an interesting series of documents on paper outside the walls of rooms vi and vii. Apart from numerous Chinese fragments including the three large pieces L.A. II. x. 03–6, there were found here two small fragments in Early Sogdian script (Pl. CXXIV) and the scrap of a document, L.A. II. x. 018, in an as yet undeciphered script. This with its partly looped, partly elongated characters curiously recalled the script in the legends on the White Hun coins. A very careful search made for the remainder of this document proved fruitless. Some

[7] See *Serindia*, i. p. 381.

[8] For similar lids with Chinese inscriptions used to close boxes containing letters on wooden slips, cf. *Serindia*, i. p. 382.

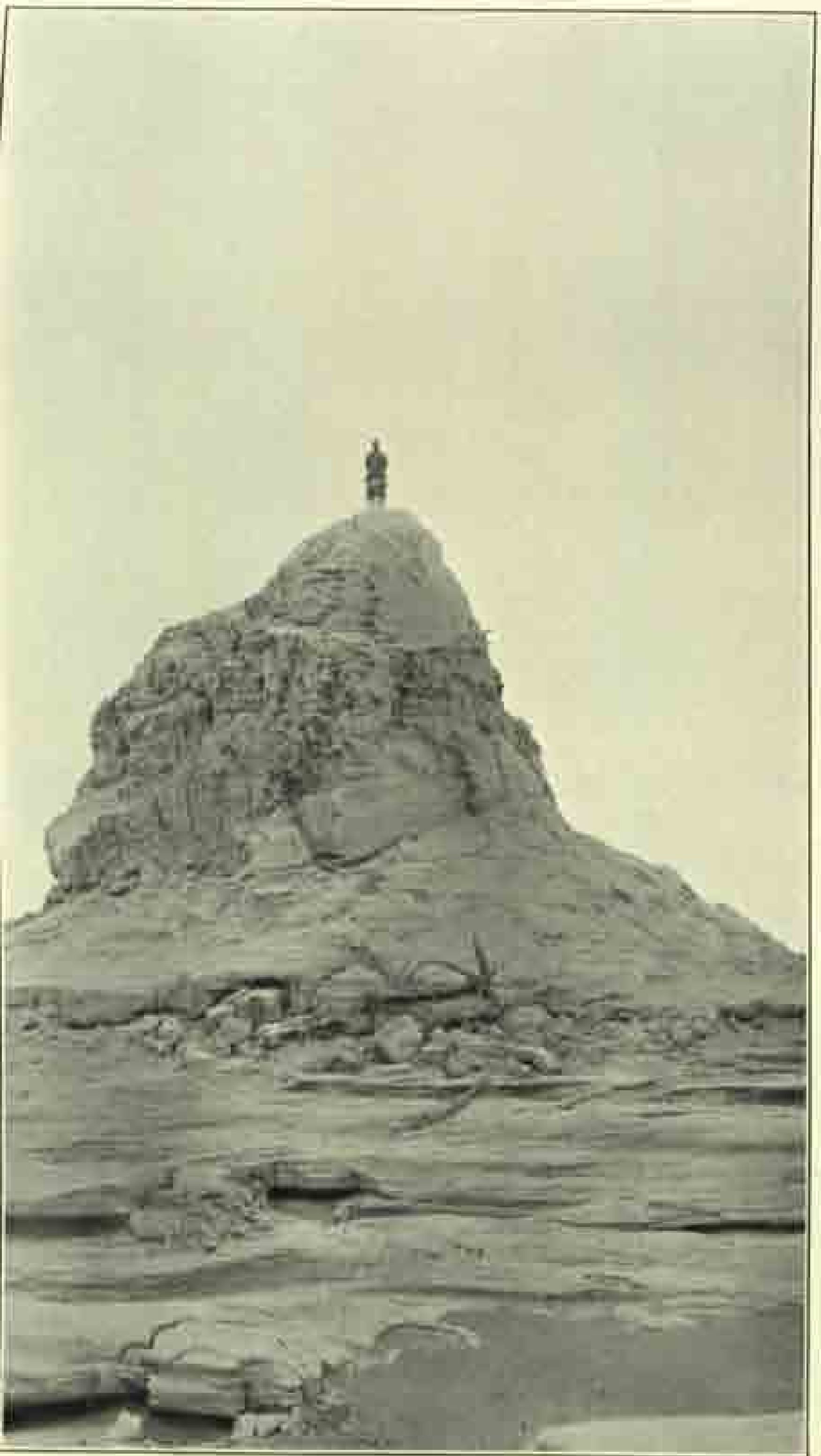
[9] [According to M. Boyer's kindly communicated reading the little bag, L.A. VI. ii. 059, appears to have been intended to convey a small present, the name of sender and recipient being inscribed on one side, and the gift (of a precious stone?) being referred to on the other; cf. Chavannes, *Doc. chinois*, pp. 199 sq.]

[10] The same misapprehension, as already mentioned above in note 6, accounts for the attribution in the List of the erroneous 'site-marks' L.A. V. x and L.A. V. xi to the records and other miscellaneous finds from these refuse deposits.

[11] See *Serindia*, iii. Pl. 25.

[12] Cf. *ibid.*, i. pp. 377 sq.

[13] See e. g. *ibid.*, iv. Pl. XIX, N. XIII. i. 001; XXXI, L.B. II. 0025–6.



149. RUINED STŪPA TO NORTH-WEST OF LOU-LAN STATION.

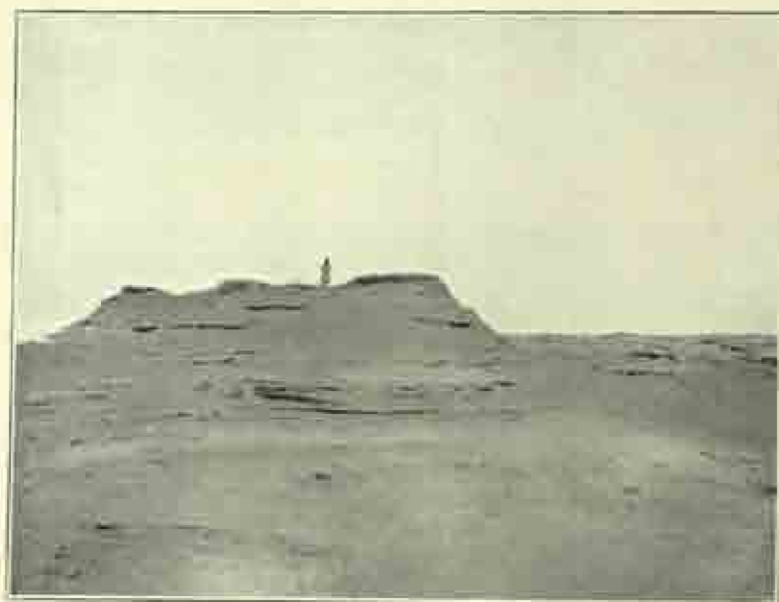
(See *Serindia*, i. p. 394.)



150. REMAINS OF WESTERN WALL OF CIRCUMVALLATION, L.A. STATION.



151. MAIN PORTION OF 'YA-MÊN' RUIN, L.A. STATION.



152. WIND-ERODED TERRACE BEARING PORTION OF FOUNDATION OF EAST WALL, L.A. STATION.



153. ERODED TERRACES BEARING REMAINS OF FOUNDATION OF NORTH WALL, L.A. STATION.

(See p. 219, note, regarding dead tamarisk stems.)



154. ERODED TERRACE BEARING REMNANT OF EAST WALL NEAR SOUTH-EAST CORNER, L.A. STATION.



155. LINE OF ERODED TERRACES MARKING SOUTH WALL OF L.A. STATION.



156. RUINED STŪPA, L.A. X, LOU-LAN STATION.

Figure of man marks original ground level.



157. NORTH END OF ERODED TERRACE BEARING FOUNDATION OF EAST WALL, L.A. STATION.

(See p. 215, note 3.)

Chinese paper fragments were found in the refuse, xi, near the western end of the main wall of L.A. II, and a square wooden tablet with Kharoṣṭhī script was picked up near the adjoining structure L.A. III. Here I may also mention that fresh examination of the debris on the slopes of the terrace bearing the remains of the dwelling L.A. I led to the recovery of a complete Chinese record on wood, as well as of a few more fragments of papers bearing Chinese writing and pasted together to form the backing for some painted decoration. Similar pieces of pasteboard made up of Chinese letters had been found on my first examination of that ruin.[14]

Ceramic frs. found on eroded ground.

As on my previous visit, the eroded ground in the vicinity of the ruined station yielded a plentiful harvest of small 'finds' of the 'Tati' type. They were picked up by the men sent out to search for more ruins and by others who looked about when not occupied with digging. In general character these finds agree closely with the corresponding collection made in 1906, and the briefest reference to the more interesting among the objects will suffice here. The large fragments L.A. 01, 0125 (Pl. XXVII) afford useful indications as to the shape and decoration of the common pottery in use during the occupation of the station; in type it appears to have agreed closely with that prevailing at the Niya Site during the same period. The pottery framework, L.A. 02 (Pl. XXVII), forming a lattice, is peculiar; like the open-work wooden panels found in 1906 at L.B. II, IV, it may have served to close an opening in the wall left for the admittance of light and air.[15] The fragment of green-glazed frit, L.A. 09, represents a ceramic product not otherwise met with at the site and likely to have been imported. Among objects in glass the vertically ribbed beads of rich blue translucent ware, L.A. 023, 0110 (Pl. XXIV), and the foot of a vessel in moulded glass, L.A. 037 (Pl. XXI), deserve mention. The paste seal, L.A. 0137 (Pl. XXIV), recalls, by its design of an animal, similar intaglios in stone from Yōtkan and other Khotan sites.[16]

Miscellaneous relics.

Of the very numerous relics in bronze the complete mirror, L.A. 0107 (Pl. XXIV), and the pieces of two others, L.A. 05, 0124 (Pl. XXIV), are the most interesting. Their decorative designs, fully described in the List below, and the Chinese characters on the last named leave no doubt of their having been imported from the East. The bronze finger-rings, L.A. 016, 090, 138 (Pl. XXIII, XXIV), and the ornamented bronze stud-head, L.A. 0136 (Pl. XXIII), may also be mentioned. Among remains in iron, also numerous, the sickle, L.A. 024 (Pl. XXI), and the well-preserved snaffle, L.A. 034 (Pl. XXI), are of special interest. The portion of a wooden saddle-tree, L.A. 04 (Pl. XVI), found on eroded ground close to the Stūpa L.A. x within the station, and in fair preservation, had probably been carried there from the remains of one of the neighbouring structures. The very numerous stone blades, L.A. 018, 069–70, 099–104, &c., suggest that the occupation of the site may go back to an early period of the stone age, while the well-worked jade celts, L.A. 0145–6, undoubtedly neolithic, may have remained in use down to times not far removed from those of the historical settlement.

Coin finds.

It is scarcely surprising that after the diligent search made during my previous stay the number of coins now collected from eroded ground at the site and around it was not so large as before. Yet, as the list in Appendix *B* shows, their total amounts to 56. With the exception of three bearing the legend *Huo-ch'üan*, all the rest are pieces of the *Wu-chu* type. The majority of them, thirty-two in all, retain the inscription *Wu-chu*, though many are clipped; the rest are small uninscribed pieces of the 'goose-eye' kind. The proportion between these varieties approximately corresponds to that noted among the coins recovered before at the ruins L.A. III–VI. It thus confirms the conclusion drawn in *Serindia* that the circulation of those much-clipped pieces as a quasi-subsidiary currency goes back farther than has been assumed by some Chinese numismatists.[17]

[14] Cf. *Serindia*, i. p. 372.

[15] See *ibid.*, i. pp. 398, 442, 444 (Pl. XXXIV).

[16] See the reproductions in the three top rows of *Serindia*, iv. Pl. V.

[17] Cf. *Serindia*, i. p. 385; iii. p. 1344.

Results of reconnaissances.

On the evening of the third day of our stay Afrāz-gul returned to our base camp at L.A. from his extensive reconnaissance to the east and north-east. His account of important remains in the latter direction was very encouraging. It held out the hope that these would furnish the clue to the line of the ancient Chinese high road from Tun-huang, which I was anxious to follow through from the Lou-lan side. His report and maps also satisfied me incidentally that some reliance could be placed on the information brought back by the small parties which had been sent out to search the area around L.A. These stated that only at two points had they come upon remains other than mere relics of the 'Tati' type or ruins already explored by me, and these two proved to be identical with the only places within half a dozen miles of the Lou-lan station where Afrāz-gul had been able to trace remains calling for excavation. The ancient burial-ground reported to the north-east was left to be explored later, when I should move to the ruins farther away in the same direction. But the ruined dwelling traced to the east-south-east was duly visited on February 14th, while supplementary work was still in progress at L.A.

Visit to ruin L.D.

This dwelling, L.D., was found to be situated about two and a half miles from the station L.A. As we proceeded towards it, the sculpturing effect of wind-erosion on the ground became less marked, and the height of the Yārdang terraces decreased to 6 to 8 feet. Close to the ruin, dead reed-beds were found on the top of some of the Yārdangs; they could also be seen on a low sandy ridge near the bank of an ancient channel farther south, to which I shall presently refer. Close to the ruin I noticed a few old tamarisk trunks still alive at their top, and received the general impression that subsoil moisture may have allowed vegetation to survive here longer than in the belt farther north.

Clearing of dwelling L.D.

The ruin proved to be that of a large dwelling, evidently a farm built of Toghrak timber, with wattle walls of vertical tamarisk branches. The woodwork was all badly decayed through rotting; but the tamarisk wattle of the walls survived to a height of a foot or a little more and permitted me to make out quite clearly the disposition of the rooms, as shown in the plan (Pl. 11). The depth of erosion around was only about 5 to 6 feet. The tamarisk brushwood of the walls had sufficed to retain a low layer of drift-sand within the rooms. But the objects brought to light by clearing them were few. The most important of them were the wedge-shaped wooden cover-tablet, L.D. 07, and the fragment of another, L.D. 04; though bleached and perished by exposure they yet clearly showed by their shape that they had belonged to Kharoṣṭhī documents of the same type as found in numbers at the Niya and L.A. sites. Their evidence leaves no doubt that the occupation of the dwelling was contemporary with that of the Lou-lan station.

Objects recovered at L.D.

Apart from some wooden implements, L.D. 02 (Pl. XXVI); a horn spoon, L.D. 06 (Pl. XXI); the fragment of an iron cooking-pot, L.D. 05, the finds chiefly comprised numerous small fragments of bronze ornaments and the like, as well as beads of glass and stone. Most of these small objects were picked up on the eroded slopes around the ruin. The small fragment of a bronze mirror, L.D. 09, may be mentioned as showing Chinese characters in the ornamentation of its back. Embedded in the ground just outside the northernmost room was found a large pottery vessel, about 3 ft. in height and 2½ ft. in diameter at its widest; the portion of its shoulder and rim, L.D. 08 (Pl. XXIX), shows the thickness and hardness of its material. A find of distinct interest had been made by Afrāz-gul on his preceding visit, in close vicinity to the ruin; this was a well-preserved Chinese bronze coin of peculiar type (Pl. CXIX), showing different seal characters at either end and attributed to Yüan Yen (12–8 B.C.). The chronological indication furnished by the effaced remains of Kharoṣṭhī documents is fully confirmed by the fact that the twenty coins picked up near L.D. were all of the *Wu-chu* type, about half of them being small clipped pieces.[18]

[18] See below, Appendix *B*.

Rows of dead Toghraks, prostrate or still upright, marked an ancient dried-up water-course winding, at a distance of about half a mile to the south, with a general direction from south-west to north-east. Fig. 145 shows some tamarisk-cones rising on eroded ground near this channel and still retaining here and there live bushes on their tops. Within the bed of the channel, about 25 yards wide and not more than 6 to 7 feet deep, a low growth of living tamarisks was also to be seen in places. Afrāz-gul had found that the character of the ground, as Fig. 145 shows it, remained much the same, as he proceeded eastwards, as far as his Camp xciva (Map No. 29. D. 3). On his way there and on his farther journey to the north-north-east, he had picked up some fragments of metal and stone (L.D.–L.G. 02–4, 017–20) as well as a dozen Chinese coins; the latter include a *Huo-ch'üan* piece, while the remainder are of the *Wu-chu* type, some retaining their inscription but others much clipped.[19] He had come across no structural remains beyond L.D. until about three miles from Camp xciva, when he came upon the timber remains of a completely eroded dwelling, L.G., on a Yārdang. The leg of a wooden food-tray which was found here, L.D.–L.G. 01, closely resembles those recovered from the ancient burial-place to be discussed in Section III.

Ancient river-bed and remains beyond L.D.

Beyond L.G. the ground changed from wind-eroded clay with remains of dead vegetation to a level flat of salt-encrusted soil or coarse sand. I was unable to visit this ground myself, but think it highly probable that we may place near L.G. the eastern limit of the area which, during the early centuries of our era, shared the physical conditions prevailing around the Lou-lan Site L.A., and was accordingly capable of permanent occupation of a settled type. It was near L.G. that we were able to trace the easternmost extension of the Kuruk-daryā delta, in the shape of an ancient river-bed. The salt-encrusted wastes that stretch farther east probably formed part of the barren foreshores of the great 'Salt Marsh'; and into this salt waste, as an early Chinese record discussed elsewhere clearly shows, the waters that once filled the Kuruk-daryā beds used to empty themselves in the period before the abandonment of the ancient route through the Lou-lan area.[20] With the nature of this ground, more desolate even than the wind-sculptured desert of the ancient delta, I was soon to become familiar farther to the north.

Foreshores of dried up 'Salt Marsh'.

Section II.—MISCELLANEOUS OBJECTS FOUND AT, OR NEAR, LOU-LAN SITE L.A.

L.A. 01. Fr. of pottery vessel, in three pieces (joined), with trumpet-shaped mouth and one small loop handle (prob. two when complete), curiously flattened above and below and evidently intended for suspension by a cord. Round neck a zigzag band is roughly incised, and on shoulder another line of single zigzag. Clay badly washed; black, burning dull red; very hard. Diam. of mouth 4¼", h. 5⅜". Pl. XXVII.

L.A. 02. Fr. of rectangular pottery framework (several pieces now joined), made of bars forming a lattice of holes 2" sq. One corner and three squares intact. Prob. 'pinjara' panel for building. Well preserved. Length 12", gr. width 4⅞", depth 1⅝"; thickness of bars ⅝" at back, slightly narrower on front. Pl. XXVII.

L.A. 03. Fr. of pottery, of indifferently washed clay; fine deep red colour. Burnt very hard. Well preserved. 3¼" × 1⅞" × ¼".

L.A. 04. Back ridge of wooden saddle-tree; in shape an angular crescent, with one horn very short and broken on upper edge. Drilled with four holes (one in each horn and two in middle part), from which channels are worn, on one side, to lower edge. Part of surface on under-edge worn smooth and round by friction. Wood very hard. Chord from horn to horn of crescent 11⅜"; h. in middle 3¼", at ends of horns 1⅛"; average thickness ⅞". Pl. XVI.

L.A. 05. Fr. of bronze mirror. On back, plain raised border ⅜" wide, and within, one 'ripple' and fr. of scroll band between two narrower rayed borders. Centre not preserved. Good condition. Gr. M. 2". Pl. XXIV.

L.A. 06. Fr. of sandstone hone, dark grey; pointed at end and flattened and worn at sides. 1⅞" × 13/16". Pl. XXI.

L.A. 07. Pottery spinning-whorl; circular disc, pierced. Diam. 1 1/16", thickness ¼".

[19] See Appendix *B*.

[20] Cf. *Serindia*, i. pp. 423 sq., for the account given in Li Tao-yüan's commentary on the *Shui ching* of the termination of the Lou-lan river in the 'Yu marshes', and for the identity of these with the 'Marsh of Salt' or *P'u-ch'ang* lake of the *Shui ching* and Former Han Annals; also below, p. 293.

L.A. 08. Stone spinning-whorl, dark grey; circular disc, pierced. Diam. $1\frac{1}{4}''$, thickness $\frac{3}{16}''$. Pl. XXI.

L.A. 09. Fr. of glazed pottery; body a coarse frit, of buff colour. Glaze copper-green, cracked but adhering well to paste. $2\frac{1}{4}'' \times 1\frac{1}{2}'' \times \frac{3}{16}''$.

L.A. 010. Fr. of almond (?)-shell. Length $1\frac{1}{16}''$.

L.A. 011. Fr. of stone: very hard, dark grey, nephrite (?). Shows sign of working. $2'' \times \frac{5}{8}'' \times \frac{3}{16}''$.

L.A. 012. Bronze disc, in form of Chinese coin, but thinner and concavo-convex. Diam. $\frac{5}{8}''$. Pl. XXIV.

L.A. 013. Fr. of bronze sheet, folded over. $\frac{15}{16}'' \times \frac{1}{4}''$.

L.A. 014. Bronze rivet with dome-shaped head. Diam. of head $\frac{5}{16}''$, shank $\frac{1}{8}''$.

L.A. 015. Fr. of worked stone blade. Length $\frac{1}{2}''$, width $\frac{3}{16}''$.

L.A. 016. Bronze finger-ring, with lozenge-shaped bezel punched with five small rings in corners and centre of lozenge. Well preserved. Diam. $\frac{5}{8}''$ to $\frac{3}{4}''$. Pl. XXIV.

L.A. 017. Bronze needle or bodkin, broken off at thicker end. Point slightly flattened. Length $1\frac{5}{8}''$, thickness $\frac{1}{16}''$ to $\frac{3}{32}''$.

L.A. 018. Fr. of stone blade, pink (flint ?). $\frac{1}{2}'' \times \frac{1}{4}''$. Length $\frac{1}{2}''$, width $\frac{1}{4}''$.

L.A. 019. Small loop of flat bronze wire, prob. shank of button. Length $\frac{3}{8}''$, width $\frac{1}{8}''$.

L.A. 020. Fr. of square bronze wire, tapering at one end and double curved. $1\frac{3}{8}'' \times \frac{1}{8}''$. Pl. XXIV.

L.A. 021. Fr. of carnelian bead, globular. Diam. $\frac{1}{2}''$, h. $\frac{5}{16}''$.

L.A. 022. Carnelian bead, globular, chipped. Diam. $\frac{5}{16}''$, h. $\frac{1}{4}''$.

L.A. 023. Fr. of glass bead, rich blue, translucent; surface ribbed vertically as L.A. 0110, Pl. XXIV. Diam. $\frac{5}{8}''$, h. $\frac{1}{2}''$.

L.A. 024. Carved iron blade. Perished at haft, edge corroded; otherwise fairly preserved. Length $9\frac{1}{4}''$, gr. width $1\frac{1}{8}''$, gr. thickness *c.* $\frac{1}{8}''$. Pl. XXI.

L.A. 025. Fr. of circular bronze mirror. Plain raised border, $\frac{1}{8}''$ wide. No pattern on minute portion of field extant. Gr. M. $1\frac{3}{8}''$.

L.A. 026. Lead spinning-whorl: plano-convex disc, pierced. Diam. $\frac{15}{16}''$, gr. thickness $\frac{5}{32}''$. Pl. XXIV.

L.A. 027. Fr. of thin bronze sheet. $1\frac{1}{4}'' \times \frac{5}{16}''$.

L.A. 028. Fr. of shell ring ornament, lotus-petal pattern. Chord $\frac{9}{16}''$, width $\frac{1}{4}''$, thickness $\frac{1}{8}''$. Pl. XXIV.

L.A. 029. Misc. small bronze and lead frs. Gr. M. $\frac{3}{4}''$.

L.A. 030. Misc. frs. of glass beads, stone and paste; eight in all, including two complete ring-beads. One green paste, opaque; the other blue glass, transparent. Diam. of latter $\frac{1}{4}''$.

L.A. (7 m. N.E. of) 031. Paste (?) ornament: heart-shaped, flat, with hole drilled through centre. Length $\frac{9}{16}''$, gr. width $\frac{1}{2}''$, thickness $\frac{1}{8}''$. Pl. XXIV.

L.A. (7 m. N.E. of) 032. Bronze stirrup-shaped object; cf. L.A. 0126, and *Ser*. iv, Pl. XXXVI, L.A. vi. ii. 0010. Length $\frac{7}{8}''$, gr. width $\frac{5}{8}''$. Pl. XXIV.

L.A. (7 m. N.E. of) 033. Bronze button, dome-shaped, with large loop at back and depression in crown. For another, see L.C. 014. Diam. $\frac{3}{4}''$. Pl. XXIII.

L.A. 034. Iron snaffle, one loop broken, somewhat corroded. Span $5\frac{3}{4}''$, thickness of bar (sq.) $\frac{1}{4}''$. Pl. XXI.

L.A. 035–6. Two frs. of bronze sheet; through one a rivet, hole in other. *c.* $\frac{3}{4}'' \times \frac{1}{2}''$. Pl. XXIV.

L.A. 037. Fr. of moulded glass, yellowish, translucent. Apparently foot of vessel, with rounded edge and undulating surface on which is raised annulet. $1\frac{1}{4}'' \times 1'' \times \frac{1}{4}''$. Pl. XXI.

L.A. 066. Bronze nail, with round head. Diam. of head $\frac{5}{8}''$, pin (broken) $\frac{1}{4}''$. Pl. XXIV.

L.A. 067. Stone spinning-whorl, shale (?). Circular disc, pierced, as L.A. 07, 08. Pl. XXI. Diam. $1''$, thickness $\frac{1}{4}''$.

L.A. 068. Paste dumb-bell-shaped object, dark grey. Length $\frac{3}{4}''$, gr. diam. $\frac{1}{2}''$. Pl. XXIII.

L.A. 069–70. Frs. of two stone blades, dark grey. Larger $1'' \times \frac{1}{2}'' \times \frac{1}{16}''$.

L.A. 071–2. Two bronze frs. *071*, wire; *072*, strip of bronze sheet. Gr. length $1\frac{1}{4}''$.

L.A. 073. Fr. of glass bead, blue, translucent, orig. spherical. Gr. M. $\frac{5}{16}''$.

L.A. 074. Fr. of iron rod, corroded. $\frac{3}{4}'' \times \frac{1}{4}''$.

L.A. 075–6. Two lead frs. *075*, flattened and bent wire. $\frac{3}{4}'' \times \frac{1}{4}''$. *076*, disc, pierced, as L.A. 026. Diam. $\frac{5}{8}''$, thickness $\frac{1}{8}''$. Pl. XXIV.

L.A. 090. Thin bronze ring, split at one side, where ends are flattened. Surface corrugated. Diam. $\frac{5}{8}''$.

L.A. 091. Fr. of glass, cut; very clear, pale yellowish. $1\frac{1}{4}'' \times \frac{1}{2}'' \times \frac{1}{8}''$.

L.A. 092 (+ 0105). Fr. of bronze object (two pieces joining), hollow behind. *Obv.*, two slightly convex surfaces meeting in straight keel shape at *c.* 55°. One end pointed, with bevelled edges; other broken off. Length $2\frac{1}{4}''$, gr. width $1\frac{1}{4}''$, thickness $\frac{1}{32}''$. Pl. XXI.

L.A. 093. Stone sphere, of lamellar structure; dark grey, weathered, broken. Pierced with large hole. Diam. $1\frac{1}{32}''$.

L.A. 094–6. Three frs. of bronze; rough, much oxydized. Gr. fr. (*094*) curved like edge of mirror, and made of three layers of bronze, superimposed. Of these the two outer are $\frac{5}{16}''$ wide, and the third ($\frac{1}{4}''$ wide) is inserted between them along outer edge, leaving this $\frac{1}{16}''$ apart along inner edge. Length $1\frac{3}{8}''$, width $\frac{5}{16}''$, thickness (outer edge) $\frac{3}{16}''$, (inner) $\frac{1}{8}''$.

L.A. 097. Metal sphere, irregular. Diam. *c.* $\frac{1}{4}''$.

L.A. 098. Fr. of bronze finger-ring, with oval bezel, empty. Diam. 13/16", gr. width 3/16". Pl. XXIV.

L.A. 099–104. Frs. of stone blades, all of grey chert, excepting 0104 which is prob. agate or very translucent flint. Largest (*0104*), 1 3/32" × 13/32" × 1/16".

L.A. 0105. Fr. of bronze, joining 092 (*q. v.*).

L.A. 0106. Hollow bronze object. 5/8" × 7/16" × 3/32".

L.A. 0107. Bronze mirror. Complete, circular, with high pierced boss to handle in centre of back. Raised border, plain; square in double raised outline round centre loop.

From centre of each side of square projects outwards a **T**, in double raised outline. Parallel to the upper limb of the **T** and about 1/8" from it is a similar and equal double line with a short return limb at right angles to it, at its R. extremity, forming a reversed **L**. The upright limb cut short by the raised border line encircling the field.

On each side of these two forms is a simple spiral probably indicating birds. Diagonally opposite the corners of central square are corners of four other similar squares, cut off by the border circle. For more elaborate rendering of the same motif, see *Ser.* iv. Pl. XXIX, L.B. v. 006. 2 5/8" × 1/16". Pl. XXIV.

L.A. 0108. Bronze oblong fr., doubled, and two ends riveted to form a tag. 1" × 1 3/16", length of rivets *c.* 1/8". Pl. XXIII.

L.A. 0109. Circular bronze setting for jewel, with four loops at back for attachment. In hollow are remains of lac which secured stone. Diam. 5/8". Pl. XXIII.

L.A. 0110. Half of glass bead; fine blue, translucent; Amalaka shape, as L.A. 023. Diam. 1/2". Pl. XXIV.

L.A. 0111. Flat oblong fr. of stone, dark grey; hole drilled from both sides near one end. Broken on all edges. 1 1/4" × 1 1/8" × 1/4". Pl. XXI.

L.A. 0112. Irregular fr. of stone, grey-brown; from implement. Gr. M. 1 1/4".

L.A. 0113–23. Eleven frs. of stone blades; dark grey chert, except 0115, 0116, yellow. Gr. fr. (*0117*) 2 1/4" × 7/16".

L.A. 0124. Fr. of bronze mirror, with hemispherical central boss pierced for handle. Relief design consists of four double battle-axe heads surrounding boss (two extant), between which are Chin. chars.; then plain band; then band formed of eight raised segments of circle with peripheries turned inwards, touching each other at ends. Depressed spandrils between segments form eight points. Outside segment band is depressed plain band; outer edge broken. 2" × 2" × 1/16". Pl. XXIV.

L.A. 0125. Fr. of large pottery jar; mouth and shoulders. Grey clay, decorated with alternate bands of incised annular lines and scallops. Diam. of mouth 5 3/4", of shoulders 12 1/2". Pl. XXVII.

L.A. 0126. Bronze wire loop (eye), pear-shaped; the two ends brought together at broad end, but not actually joined. As *Ser.* iv. Pl. XXXVI, L.A. vi. ii. 0010; cf. also L.A. 032. Length 1 1/2", gr. width 3/8". Pl. XXIV.

L.A. 0127. Fr. of pottery, coarse red, outer surface chipped off. Found 7 miles NW. of L.A. 3 1/2" × 2 3/4" × 1/4".

L.A. 0128. Fr. of pottery, dark red, full of white grit; black on both faces. Gr. M. 3 3/8", thickness 1/4".

L.A. 0136. Bronze stud head; sq., convex, forming quatrefoil, with thick elongated midrib in each foil accentuating and strengthening corners. Hole drilled through centre, and four smaller ones round it between foils. 5/8" sq., h. 3/16". Pl. XXIII.

L.A. 0137. Red paste seal, elliptical, with two parallel loops at back for cord. Device, an animal standing to L. p. Legs worked in dots. Face 5/16" × 1/2". Pl. XXIV.

L.A. 0138. Bronze ring, broad with ribbed surface as N. xii. 03. Diam. 11/16", breadth 3/16". Pl. XXIII.

L.A. 0139. Fr. of stone, of rich dark turquoise colour; malachite (?). 5/16" × 1/4" × 1/8".

L.A. 0140–1. Fr. of bronze, thick, with curved edge and traces of relief. Prob. edge of mirror, but pattern obliterated by oxydization. 1 5/8" × 3/4" × 1/8".

L.A. 0142. Bronze ball. Diam. 3/16". Pl. XXIV.

L.A. 0143. Fr. of spout of pottery vessel, roughly cut into a number of irregular flat 'flutings'; portion of shoulder attached. Grey, coarse and spongy, but polished by exposure. Broken at both ends. 3 1/4" × 3 1/2" × 1/2" × 3/8". Pl. XXVII.

L.A. 0145–6. Two jade celts; dark and light green respectively. *0145*, 2 3/4" × (gr. width) 1 5/8" × (gr. thickness) 3/8"; *0146*, 2 3/8" × 1 7/16" × 7/16".

L.A. 0147. Stone blade, long, narrow, black. Length 2 1/4", gr. width 1/2".

OBJECTS EXCAVATED AT, OR NEAR, RUINS L.A. I–VI

L.A. i. vi. 01. Fr. of glass bead; turquoise, translucent, cylindrical, made by winding a thin cord of glass spirally round a mandril. Length 5/16", diam. 1/4".

L.A. i. vi. 02. Half of carnelian bead; light red, spherical. Diam. 5/16".

L.A. ii. 01. Strip of leather, buff-coloured, in two pieces. Two holes pierced at one end. Dry and brittle. Length 14", width 3/4".

L.A. ii. 02. Wedge-shaped wooden object, with two wings of unequal length projecting flush with one face, at broad end. Cut in one piece. Through the longer wing a round hole, 5/8" diam. Use doubtful. Well preserved. Width of wedge 3 1/4" to 1 1/4", length 2 1/4", thickness 1 1/4". Long wing 1 1/2" × 1 1/8" × 1/4"; short wing 5/8" × 1 1/4" × 1/8". Pl. XVI.

L.A. ii. 03. Tubular leather object, prob. leg of top boot, or sock. Marks of sewing where foot joined. Hair on inside at upper end. Well preserved. Length 1' 1 1/4", diam. 5 1/2".

L.A. II. 04. Fresco fr., buff surface with bold dark lines of geometrical disposition. Bad condition. 4" × 5⅜".

L.A. II. 05. Fr. of carved wooden frame. Within raised edge is lozenge pattern formed by trellis of raised bands with line of bead orn. down middle of each. In each lozenge a four-petalled flower. Badly weathered and split. 1' × 2½" × 1⅜". Pl. XVI.

L.A. III. i. 01. Fr. of oblong tablet; R. end square, intact; L. end roughly cut off in wedge-shape, apparently later. *Obv.* one l. Khar., along top, with 4 columns Khar. words below. *Rev.* a few Khar. chars., faint. Wood hard, but cracked. 3¼" × 4⅜" (max.) × ½". Pl. XVIII.

L.A. IV. v. 01. Leather shoe, round-toed. Edge round opening leather bound. Sole: strips of leather stitched lengthways. Numbers of repairs to sole and irregular patches roughly applied. Brittle. Length 9⅜", gr. width 4⅜". Pl. XXVII.

L.A. IV. v. 02. Fr. of horn, hollow, perished. Length 4½" × 1⅜".

L.A. IV. v. 03. Wooden seal-case; sq. with three string notches. Hole drilled through other two sides and through bottom. Holes unusual; but cf. *Ser.* ii. p. 780, T. XIV. vii. 004, and ii. p. 771, T. VIII. 5, type B. 1⅜" sq. × ⅞". Pl. XVI.

L.A. IV. v. 04. Two frs. of silk fabric, plain white, much worn. Gr. fr. 5" × 3½".

L.A. IV. v. 05. Wooden object, roughly amphora shape, drilled through from end to end. H. 1¼", gr. diam. ⅝". Pl. XXI.

L.A. IV. v. 06. Fr. of pottery, dark grey, orn. with comb-drawn band and festoons. Hole drilled at one edge. Cf. Sh. 04–05, and *Ser.* iv. Pl. XXXVI, L.A. VI. ii. 1. 1⅝" × 1½" × 3/16". Pl. XXI.

L.A. IV. v. 07. Fr. of leather, hard and worn. Gr. M. 3¼".

L.A. IV. v. 08. Vegetable fibre; a few strands. Gr. M. c. 5".

L.A. IV. v. 09–12. Four frs. of woollen fabric; plain even weave. *011* crimson, others yellowish buff; *010* has fr. of buff silk sewn to it. Gr. fr. (*010*) 7⅜" × 9".

L.A. IV. v. 013. Two frs. of paste. Gr. M. ¾".

L.A. IV. v. 014. Sheath-like silk object: tapering, triangular, of very fine white silk, finely sewn. Length 8", width 2½" to 7/16".

L.A. IV. v. 015. Fr. of silk fabric, plain white. 5" × 10".

L.A. IV. v. 016. Silk cord; made of strip of plain buff silk twisted and knotted, strand of woollen yarn, and strip of buff and crimson silk sewn together. Length 21½".

L.A. IV. v. 017. Three frs. of silk fabric, plain blue, sand-encrusted. Gr. fr. 4" × 3".

L.A. IV. v. 018. Fin-bone of small fish (?), shaped something like bird's sternum. Length 1⅜", gr. width ⅝".

L.A. IV. v. 019. Lower jaw-bone of small fish (?), set with recurved saw teeth. Narrow, long and tapering. Length 2", width at articulation ⅜".

L.A. V. x. 01. Part of horn saddle-tree, of flattened arch shape. One end lost; five circular holes at broken edge show repair in antiquity. Other end broken off, now re-joined. Three oblong rectang. holes evenly spaced along lower edge, and remains of another at breadth. Well made; horn split and hard; cf. L.A. 04. Across ends orig. c. 12⅜", h. of arc 6⅜", width (in middle) 2¼", (at end) 1⅜", gr. thickness ½". Pl. XVI.

L.A. V. x. 02. Fr. of bronze sheet, roughly triangular, thickened at one angle where it extends to a narrow tongue through which is drilled a hole. Shoulders where tongue joins. Oxydized and bent. 5" × 4⅜" × ⅛".

L.A. V. x. 03. Wooden 'chŭluk', as *Ser.* iv. Pl. XXXV, L.B. IV. ii. 009, &c. Made from fork of natural stick, slightly thinned under one arm of cross-piece. Notch for string round lower end, and end pointed, as *Ser.* examples. Used for fastening animals' collars. Length 5", length of cross-piece 4⅜", diam. of stick ⅜". Pl. XVI.

L.A. V. x. 04. Oblong block of wood, with return piece along one long edge (but broken off short). Two holes drilled through width of main piece, near each end. Length 3 13/16", width 1⅜", thickness ½" (with return, max. ⅞").

L.A. V. x. 05–8. Four rough pads of coarse woollen fabric and felt. Ragged and dirty. Approx. size 6" × 4".

L.A. V. x. 09. Mass of wool, fine brown, half felted. *C.* 4" × 3".

L.A. V. x. 010. Fr. of goat's-hair fabric: course, buff and dark brown. Thick warp and close-pressed weft, giving ribbed effect. Dirty. *C.* 3¼" × 2".

L.A. V. x. 011. Fr. of rope, made of three strands of vegetable fibre. Length 9", diam. ⅜" to ½".

L.A. V. x. 012. Fr. of goat's-hair cord; two strands, doubled and twisted together. Doubled end button-holed with fine buff woollen yarn. Length 10⅜", diam. 5/16".

L.A. V. x. 013. Fr. of pottery; hard grey, fairly well washed. Basket-marked outside. Gr. M. 6⅛", thickness ¼". Pl. XXVII.

L.A. V. xi. 01. Fr. of felt, buff-coloured, ragged. Gr. M. 2¾".

L.A. V. xi. 02. Fr. of woollen canvas, in broad buff and brown stripes. Coarse. Well preserved. Gr. M. 7".

L.A. V. xi. 03. Wooden label; blank, pointed at one end. 4 5/16" × 1" × ¼". Pl. XXI.

L.A. V. xi. 04. Stone spinning-whorl, dark grey; disc, pierced, slightly convex on one side. Diam. 1¼", thickness 5/16". Pl. XXI.

L.A. VI. ii. 01. Rectang. wooden tablet, with a hole pierced near each of two corners. Blank. 4¾" × 2¼" × 3/16".

L.A. VI. ii. 02. Frs. of horsehair canvas, with portion of felt border attached, and string patches. Prob. part of strainer as *Ser.* iv. Pl. XXVIII, N. XII. 0018, and Pl. L. M. I. iv. 0010. Brittle. Gr. fr. 2⅜" × 2½".

L.A. VI. ii. 03. Fr. of silk fabric, buff; fine plain texture, sewn in places. Torn. 7¾" × 7⅜".

L.A. vi. ii. 04. Fr. of paper, buff, well made; torn and blank. 6" × 5".

L.A. vi. ii. 05. Fr. of loom-woven textile in blue and buff. Counterchange stripes, the pattern being a three-pointed narrow leaf half blue and half buff. Evenly woven double cloth. 4¼" × 3½". Ragged but well preserved. Pl. XLIII.

L.A. vi. ii. 06. Crimson silk bag, with narrow green edging, and thick drawing string of double buff colour silk tied in bow at each side. Mouth relatively large; bag lined with buff corded silk. Prob. for charm. Worn. 1¾" × 1½".

L.A. vi. ii. 07. Fr. of hemp string, three-ply, well made. 1' 1" × ¼".

L.A. vi. ii. 08. Wooden 'dead-eye', U-shaped, as *Ser.* iv. Pl. XXVIII, N. xxix. ii. 001. b. 3$\frac{1}{16}$" × 2½".

L.A. vi. ii. 09. Wooden cleat as N. xlii. i. 03, &c., and *Ser.* iv. Pl. XXVIII, N. xiv. iii. 0017, &c. Prob. used in loom for supporting heddles. Well preserved. 3¾" × ¾" × ½".

L.A. vi. ii. 010. Wooden spoon, roughly made, with bowl slightly askew. 6¼" × ½" × ½", bowl 2" × 1". Pl. XXIX.

L.A. vi. ii. 011. Dome-shaped wooden object, pierced through centre; somewhat like spinning-whorl. Diam. 1¾", h. ⅝". Pl. XXI.

L.A. vi. ii. 012. Wooden disc, roughly made, pierced and showing wear on one side of hole on each surface,—the wear being in opposite directions on two sides, as though used as some sort of check on a straight cord. Traces of black paint on one side and red on other. Diam. 1¼", thickness $\frac{5}{16}$".

L.A. vi. ii. 013. Piece of wooden stick, rounded at one end, partly broken at other. Seems to have been drilled through part of its length. Length 2¾", diam. $\frac{7}{16}$".

L.A. vi. ii. 014. Fr. of wooden lath, plain. 2½" × ½" × $\frac{3}{16}$".

L.A. vi. ii. 015. Twig of wood, with yarn twisted round it, used as a spindle. Length 4⅝", diam. $\frac{3}{16}$". Pl. XXI.

L.A. vi. ii. 016. Fr. of carnelian bead, red. Gr. M. $\frac{7}{16}$".

L.A. vi. ii. 017. Fr. of side of pottery vessel, partly glazed on exterior with poor green glaze. Outer surface scaled; saline eruption. Finely washed and levigated red body. Gr. M. 4⅞", thickness $\frac{7}{16}$".

L.A. vi. ii. 018. Mass of woollen silk and hair frs., including frs. of buff and crimson plain woollen fabric; one fr. of plain crimson silk; flat plaited goat's-hair band; twisted cord; fine rosary-knotted cords of same, and mass of fine white wool. Gr. length (twisted cord) 3' 2".

L.A. vi. ii. 057. Part of box-lid, shaped like rectang. cover-tablet, and with similar seal cav. and string-grooves, but rabbeted below, round edge, to fit into top of box.

Along inner side of rabbet, at one end, a deeper groove is again cut. About two-thirds of the lid are preserved (in width); complete in length. *Obv.* seal cav. (1" × ¾" incomplete); seal and strings lost. Part of 3 ll. Khar. across one end, and of one l. across other; clear black. *Underside* blank. Wood hard and in good condition. 3$\frac{7}{16}$" × 1" (incomplete) × (gr. thickness) ⅝". Pl. XVIII.

L.A. vi. ii. 058. Rectang. cover-tablet; miniature; corners chipped, but otherwise good condition. *Obv.* seal cav. ($\frac{7}{16}$" sq.) and string-grooves; both empty. No writing obv. or rev. 2$\frac{7}{16}$" × 1" × (max.) ⅜". Pl. XVII.

L.A. vi. ii. 059. Small silk bag, oblong, one end open; inscr. one side with 4 ll. Khar., on other with 2 ll. Some holes, but writing clear and black. Silk natural-coloured; rather open weave. Bag 2¼" × 1⅝". Pl. XVII.

L.A. vi. v. 01. Part of wooden comb, with unusually high-arched back; rather roughly made. H. 3½", length of teeth 1¾", width (broken) 1$\frac{13}{16}$".

L.A. vi. v. 02. Wooden cleat, similar to L.A. vi. ii. 09, &c. Well preserved. Length 3⅞", width $\frac{13}{16}$", thickness ¾".

OBJECTS EXCAVATED, OR FOUND NEAR, DWELLING L.D.

L.D. 01. Circular wooden lid with overhanging rim, slightly domed on upper side and drilled in centre for handle. Broken away at two sides. Split and weathered. Diam. 4⅞", gr. thickness ⅝".

L.D. 02–3. Two wooden 'dead-eyes'; *02* as *Ser.* iv. Pl. XXVIII, N. xxix. ii. 001. b; *03* horseshoe-shaped. Both much perished. Lengths 3½" and 3¼", span of each 3¼". Pl. XVI, XXVI.

L.D. 04. Fr. of wooden cov.-tablet, showing portion of seal cavity and three string notches. Much perished. 3½" × 1¼".

L.D. 05. Fr. of side (?) of iron cooking-pot; round, with two slightly raised ridges. Similar to N. xli. 01, Pl. XXVII. Surface corroded. 4" × 2¾".

L.D. 06. Horn spoon, with curved bowl, shaped by cutting the material concavo-convex. Long handle, broken. Perished and split open at the laminations. Length 6¾", gr. width of bowl 1¼". Pl. XXI.

L.D. 07. Wedge-shaped wooden cov.-tablet, with seal cavity and hole near point. Bleached, split, and corroded. 13¼" × 2¼" (gr. width).

L.D. 08. Fr. of rim and shoulder of pottery vessel, large, thick and heavy. Well-curled lip with squared edge presented directly outwards, very short neck, and abruptly out-curving shoulder. Dark grey clay, poorly washed, very hard. Good condition. 7¾" × 3½" × ⅞", orig. diam. of mouth *c.* 11". Pl. XXIX.

L.D. 09. Fr. of bronze mirror, showing on back plain raised outer edge; then band with Chin. chars. between two narrow rayed bands; and raised band of circle-

segments, as in L.A. 0124, Pl. XXIV, bordering inner field. Corroded. 1 1/4" × 1 1/4" × 3/32".

L.D. 010. Bronze loop of buckle, of squat key-hole shape. 5/8" × 5/8" × 1/32". Pl. XXIV.

L.D. 011. Bronze stud, with dome-shaped head. Length 5/16", diam. of head 1/4".

L.D. 012. Fr. of bronze plate, oblong, pierced. 1/2" × 3/16".

L.D. 013. Glass bead, blue, translucent, of flattened double cone shape. Diam. 1/4", h. 5/32".

L.D. 014. Half of glass bead, blue, translucent; spherical. Diam. 7/32", h. 3/16".

L.D. 015. Fr. of glass, blue, translucent, flat. 5/8" × 1/2" × 3/32".

L.D. 016. Fr. of glass vessel. Edge of circular foot or mouth, flattened on horizontal surface, with round edge leading to neck. Green glass, cloudy but transparent. 1 1/8" × 5/8" × 3/16".

L.D. 017. Fr. of agate bead, brilliant orange red, cloudy; bugle. Length 1 1/16", diam. 7/16".

L.D. 018. Bronze orn. Thin circular plate, pierced, with fleur-de-lis orn. rising from one side. 1" × 13/16".

L.D. 019. Fr. of iron wire, bent to loop. Oxydized. 5/8" × 3/8", thickness of wire 1/8".

L.D. 020–1. Two frs. of bronze finger-ring; loop orn. with series of circular settings (empty). Diam. of settings 3/32", length (gr. fr.) 5/8", width 7/32".

L.D. 022. Fr. of bronze wire, flattened, bent up irregularly at each end. 5/8" × 1/4" × 1/16".

L.D. 023. Fr. of bronze rosette: thin sheet, scalloped on one edge and showing two sides of sq. hole at other. 1/2" × 3/8".

L.D. 024. Bronze stud, with dome-shaped head, as L.D. 011, &c. Length 3/8", diam. of head 7/16".

L.D. 025. Fr. of stone blade, as L.C.–L.G. 012, &c. 1 1/8" × 1/2" × 1/16".

L.D. 026–8. Three frs. of glass beads, blue, translucent, spherical and ring-shaped. Gr. M. 1/2".

L.D. 029. Fr. of agate bead, spherical. 9/16" × 5/16" × 1/4".

L.D. 030. Fr. of glass, transparent, horn colour, irregular shape. 7/16" × 3/8" × 1/8".

OBJECTS FOUND AT OR NEAR L.G.

L.G. 01. Pottery handle; curved, rough grey; clay full of white grit. Length 2 1/2", width 1", thickness 1/2".

L.G. 02. Jasper (?) core, brown. 2 1/4" × 1" × 1".

L.G. 03. Stone implement; celt-shaped, soft grey schist, with hole drilled through from both sides at top. 2 1/8" × 1 3/8" × 1/4".

L.G. 04. Paste bead, flat rectang., yellow. 3/8" × 1/4" × 1/8".

L.G. 05–8. Flakes from various stones; brown and green. Largest 1 3/8" × 3/4" × 3/32".

L.G. 09. Fr. of stone scraper (?), hard black. 1 1/4" × 1" × 3/8".

L.G. 010. Bronze buckle, small circular, with tongue preserved. Diam. 13/16", thickness of bar 1/16".

L.G. 011. Bronze arrow-head, of solid triangular flat-faced type, as L.J. 01. Good condition. 1 1/8", gr. width 13/16". Pl. XXIII.

L.G. 015. Fr. of bronze plate. 9/16" × 3/8" × 1/32".

OBJECTS FOUND BY M. AFRÂZ-GUL ON ROUTES TO, OR FROM, L.G.

L.D.–L.G. 01. Leg of wooden food-tray; lion-leg shape as L.C. x. 06, 07. 4 5/8" × 1 1/4" × 5/8".

L.D.–L.G. 02. Fr. of stone point, prob. arrow or javelin head. Cf. L.C.–L.G. 011, Pl. XXII. 1 1/4" × 5/8" × 1/8".

L.D.–L.G. 03–4. Two bronze frs. *03*, of solid curved bar, circular in section. Length 1 1/4". *04*, of straight hollow tube. Length 5/8".

L.D.–L.G. 017. Fr. of carnelian bead, red, spherical. Diam. 5/8".

L.D.–L.G. 018. Fr. of stone implement, indeterminate. 1" × 1/2" × 1/16".

L.D.–L.G. 019. Iron ring, split at one side, corroded. 1 1/4" × 1".

L.D.–L.G. 020. Iron nail, wedge-shaped. Length 1 1/2", gr. width 3/8", gr. thickness 1/4".

L.C.–L.G. 01–6. Frs. of bronze sheet and rod. Gr. fr. 1 1/4" × 5/8" × 1/16".

L.C.–L.G. 07–8. Two stone frs., light-grey; long irregular shape. Longest 2 3/4", width *c.* 5/8".

L.C.–L.G. 09–10. Two chert cores, hard, grey; *010* with facets all round, *09* with one flat face. Lengths: *09* 2 1/4", *010* 1 7/8". Pl. XXII.

L.C.–L.G. 011. Jasper hastate point; arrow-head or small spear-head, broken at both ends. Brownish-grey. Length 2 3/4". Pl. XXII.

L.C.–L.G. 012–14. Three frs. of stone blades. *012*, olive grey, with double rib; *013*, mottled brown, slightly curved, double rib and part of third; *014*, black, with central rib. Lengths 1 1/4", 1 1/8", 1 9/16".

L.C.–L.G. 015. Fr. of pottery; course, dark grey, full of white grit; showing two groups of incised parallel lines meeting *en chevron*, as in L.A. 0143, Pl. XXVII. 2 1/4" × 2" × 1/4". Pl. XXV.

Section III.—RELICS OF AN ANCIENT BURIAL-GROUND

During the four days we had so far spent with our base established at the Lou-lan station, the weather had favoured our labours. The temperature had indeed kept very low, with minima down to 44 degrees F. below freezing-point. But the cold, in the absence of any wind except occasional gentle breezes from the north-east, was not felt severely, and the clearness of the atmosphere had made reconnaissances easy. For most of the time the barren southern hill ranges of the Kuruk-tāgh showed their reddish-brown outlines quite clearly to the north, above the yellow expanse of Yārdangs and the grey flat of the gravel glacis. On the evening of February 12th and again on the following morning I could also make out distinctly the snowy heights of the K'un-lun far away to the south, stretching apparently from the vicinity of Bāsh-kurghān to the head-waters of the Jahān-sai.[1] This encouraged me greatly to hope that it might be possible later on, either in this or the subsequent winter, to obtain 'rays' with the theodolite to previously triangulated points in this section of the northernmost K'un-lun range and thus to secure a base for extending our triangulation from that side right across the Lop desert to the Kuruk-tāgh. Atmospheric conditions.

Unfortunately Lāl Singh was not with us to take advantage of atmospheric conditions favourable for the measurement of angles with the theodolite. His prolonged absence from our appointed rendezvous was causing me serious anxiety. The big bonfires I caused to be lit evening after evening at the top of the ruined Stūpa in order to help him in locating our camp failed to produce any sign of his approach from the side of the Kuruk-daryā. Whether this delay was due to difficulties of transport encountered on the desert journey or to the effect of direct Chinese obstruction, the uncertainty as to his progress seemed seriously to threaten the execution of my further plans. Arrival of Lāl Singh delayed.

This weight of doubts could not, however, be allowed to interfere with my immediate task, the exploration of the ancient remains to the north-east, revealed by Afrāz-gul's successful reconnaissance, and for these I decided to set out on February 15th. The camels, it is true, were not expected to return from their rest at Āltmish-bulak for another three days; but the lack of transport animals was not permitted to delay our move. A couple of Loplik labourers whom the preceding fatigues and hardships had brought on the sick list were left behind at our base under the care of faithful Ibrāhīm Bēg, who would also keep an eye on our ice depot. The rest of the men were taken along and just sufficed to carry the minimum of indispensable baggage and the necessary supplies of food and ice. Start for exploration to NE.

Our march, which started at daybreak on a cloudy and somewhat windy morning, was made easier by the fact that its direction to the north-east was more or less parallel to the general trend of the Yārdang terraces. These for about a mile were very sharply sculptured and rose to 12 feet or more in height. Farther on their height somewhat diminished, and in the gradually widening trenches between them I noticed the appearance of coarse, almost gravel-like sand, which supplies a most effective instrument for the relentless erosive action of the winds. Like the small pieces of gypsum and fragments of chalk which soon began to be frequent, it had been obviously carried here from ground farther away to the north-east. Small pieces of pottery were plentiful for a distance of about two and a half miles from L.A., and small fragments of bronze and a few stone implements (L.A.–L.C. 01–9) were also picked up *en route*. Beyond an old bed marked by fallen Toghraks half a mile farther on, the Yārdang terraces were found singularly bare of remains of dead vegetation, while potsherds were still occasionally met with in small patches. Finally the pottery debris became again more abundant as after about six miles of march we approached the conspicuous terrace, L.C. (Fig. 158), where Afrāz-gul had come upon indications of ancient burials. March to L.C. Mesa.

[1] See Map No. 30. B–D. 3.

Character of Mesa.

A first inspection sufficed to show me that this terrace, rising about 35 feet above the surrounding, but little eroded, ground, was a Mesa differing distinctly in size, character, and direction from the familiar Yārdangs. As the plan, Pl. 12, shows, it measured about 56 yards in length from north-east to south-west, with a maximum width at its foot of about 32 yards. Just as in the case of Yārdangs the end facing the prevailing wind-direction rose very steeply, while the opposite end tailed away with a gentle slope. But, quite apart from the height of the terrace and its isolation on comparatively flat ground, the difference of its longitudinal bearing from the regular ENE.–WSW. direction of the Yārdangs was sufficient to show that its origin must have been geologically different from that of the latter. It was in fact the westernmost of those Mesas of which we were to meet thereafter so many around the northern and eastern shores of the ancient Lop Sea bed. From the first my attention was attracted by the fact that the terrace was composed of salt-impregnated clay of greater consistency than the ground around it, and further that wind-erosion, instead of undercutting at its foot, as regularly happens with Yārdangs, was here mainly at work along the top edges of the Mesa.[2] The total absence of any structural remains on the top clearly showed that the terrace could not owe its height to the protection which some massive building might have afforded, but must already in ancient times have risen high above the level of the neighbouring ground.

Mesa top selected as burial-ground.

I could not doubt from the first that it was the elevation of this Mesa terrace, a marked feature even at an early historical period when moisture and vegetation still protected the adjoining soil, that had caused it to be selected as a burial-ground. Some grave-pits, half exposed on the top edges of the mound, could at once be made out.[3] But only few sepulchral objects were found on the slopes below, and most of these immediately beneath the still traceable graves. Had the top of the terrace represented only the surviving portion of what was once a cemetery situated on the general level of the area, we might reasonably have expected to find the slopes of the terrace as well as the eroded ground near it strewn with hard debris, such as metal objects, human bones, planks of coffins, &c., just as similar debris is always found round the remnants of wind-eroded dwellings. Yet the immediate vicinity of the terrace showed none of this 'Tati' appearance.

First relics of silk fabrics.

The reconnaissance reports had led me to expect here merely such relics as wind-erosion might have spared. I was therefore all the more delighted to find on the first rapid inspection that the summit of the Mesa retained a number of graves, apart from those on its edges, quite untouched by that destructive agent. They were all marked by rough tamarisk posts fixed, as subsequent examination showed, around the edges of the graves or pits, while the latter themselves were covered with layers of reeds almost entirely exposed. Until the heavily laden men arrived I had to be content with examining such relics as the partially eroded graves on the edge of the terrace disclosed. Here my eye was caught at once, amidst human bones and broken boards from decayed coffins, by some rags of beautifully woven silk fabrics. Their brilliant colours were excellently preserved, even where the crumbling away of the steep slope of clay had left them lying on the surface, exposed to sun and wind. Their survival under such conditions seemed a particularly encouraging augury.

Datable figured silk fragment.

My hope of finding other fabrics in graves that had escaped erosion was naturally still further stimulated when in one of these figured silk fragments (L.C. 031. b, Pl. XXXV) I recognized a

[2] I may point out here that the effect of wind-erosion seen in the foreground of the photograph, Fig. 158, is probably proceeding not in the soil of the Mesa itself but in the loess-like alluvium in which its foot is embedded. A comparison of this photograph with those which, like Figs. 98, 105 of *Serindia*, i., and Figs. 146, 149, 153, 156, &c., here, show wind-erosion at work on terraces that have been formed as a result of protection by ruined structures, will help to illustrate the difference above indicated.

[3] See i, ii, vi, vii, in the plan, Pl. 12.



158. WESTERN PORTION OF MESA L.C., SEEN FROM SOUTH-EAST.



159. GRAVE PITS ON TOP OF MESA L.C. AFTER CLEARING.
View obscured by effects of sand-storm.



160. VIEW ACROSS INTERIOR OF ANCIENT CASTRUM L.E., FROM NORTH.
Position of main gate marked by arrow.



161. RAMPART AT SOUTH-EAST CORNER OF ANCIENT CASTRUM L.E., LOP DESERT.



162. WEST RAMPART OF ANCIENT CASTRUM L.E., LOP DESERT, SEEN FROM INSIDE NORTH GATE.



163. PORTION OF EAST RAMPART OF ANCIENT CASTRUM L.E., SEEN FROM WITHIN.
(Man on right stands on original ground level.)

pattern reproducing very closely, both in its design and in its rich yellow and blue colours, that of a small piece of silk fabric that I well remembered among the relics from the refuse heaps of the watch station T. xv. a of the Tun-huang Limes. These relics are proved by numerous dated Chinese documents to belong to the period extending from the middle of the first century B.C. to about the first third of the second century A.D.[4] Thus one of the very first finds at L.C. furnished me at once with a definite indication that the remains preserved in the burials of the site went back to the Han period.

Abundance of textile remains.

My hopes were abundantly fulfilled as soon as the arrival of my diggers made it possible to start the clearing of the graves, first where they lay near the edge of the Mesa top and then about its centre. The importance of the antiquarian treasure that I had come upon became apparent almost at once; but what impressed me even more at the time was the quite bewildering confusion in which it presented itself. Instead of regular burials with coffins and human bodies more or less recognizable, such as the first rapid inspection of the half-eroded remains had led me to look for, there emerged from the grave-pits a mass of detached human bones mixed up in utter disorder with fragments of boards once evidently belonging to coffins; with objects of personal use, such as decorated bronze mirrors, wooden combs, &c., deposited with the dead; wooden eating-trays, jugs, &c., used for sepulchral offerings; wooden models of arms, and, above all, with rags of every sort comprising a wonderful variety of fabrics. Among these rags were beautifully woven and coloured silks, often showing rich polychrome designs; fragments of delicate enbroidery and tapestry; torn pieces of fine woollen pile carpets, by the side of numerous coarse fabrics in wool, felts and what appeared to be cotton. That all these materials were of Chinese origin or had been in Chinese use there could be no doubt, and finds of Chinese records on paper and wood confirmed it.

Mixed up remnants of earlier burials.

It soon became evident, from the way in which rags of various fabrics were often found stuck to the same bones, that these were remnants of garments which after long wear by the living had finally been employed to wrap tightly the dead bodies. Tattered and torn as all the fabrics were, yet many of them were excellently preserved, notwithstanding their dirt and sand-encrusted condition. In strange contrast with this was the fact that not a single intact skeleton was found, and that all such human bones as were not still protected by swathing plainly showed marks of weathering and corrosion. This was obviously the result of a prolonged exposure which these human remains must have undergone before their final deposit in the pits that I was clearing. Thus a variety of indications soon led me to realize that the contents of these pits must have been collected, before the final abandonment of the Chinese station of Lou-lan, from older graves which wind-erosion, decay, or some similar cause had exposed or was threatening.

Position of grave-pits.

Before I refer to the observations made at other sites which have since fully confirmed this conclusion, or to the valuable archaeological indications which may be deduced from it as regards the dating of the relics here recovered, it will be convenient to note a few further details about the place where they were found. As the plan, Pl. 12, shows, the disposition of the grave-pits on the flat top of the Mesa was quite irregular. While a few, as already mentioned, lay close to the longitudinal edges and had in consequence become partially exposed on the outside, the rest were grouped together more or less closely near the centre. The pits were all roughly rectangular in outline and cut into the hard salt-impregnated clay of the Mesa to a depth of 5 to 6 feet. But their surface dimensions, where intact, varied greatly, from about 40 square feet in the case of pit v to

[4] Cf. *Serindia*, ii. pp. 700, 781; iv. Pl. LV, for T. xv. a. 002. a. As the several refuse heaps of T. xv. a. i, ii and iii date from three different and well-defined periods, I must specially regret now the absence of a more exact record as to the provenance of the little silk piece T. xv. a. 002. a, as this would have made it possible to fix the date of it still more closely within the chronological limits above mentioned (53 B.C.–A.D. 137).

about 70 square feet in that of iii. In addition to the pits i–vii, which were cleared on February 15th immediately after my arrival at L.C., a fresh careful search on the return march two days later revealed three more grave-pits, viii–x. Besides these a few shallow excavations were then traced towards the north-east extremity of the Mesa top. They contained nothing but drift-sand and had apparently never been used.

Protection secured from wind-erosion.

The only covering of those grave-pits which retained their sepulchral contents, just as they had been thrown in on re-burial, consisted of layers of reed-straw, from 1 to 1½ feet in thickness. This material, apparently so frail, had perfectly sufficed to keep off wind-erosion, a fact that I had frequently observed in connexion with ancient remains on desert ground in the Tārīm and Su-lo-ho basins.[5] The rows of tamarisk sticks which, placed at irregular intervals, roughly lined the edges of the pits and rose a few inches above them, may have been partly intended to secure these layers of reeds. That no superstructures had ever existed over these places of re-burial may be concluded with certainty from the uniform flatness of the Mesa top, as Fig. 158 shows it. This clearly proves that erosion cannot have been at work here to any great extent since the re-burials took place, and in a place so completely safe from moisture of any sort wind-erosion alone could have attacked and destroyed structural remains.

Custom of collecting burial remains.

The character of the mixed remains in the pits of L.C. left no doubt about their having been gathered from earlier graves, threatened with destruction or already exposed. It appears equally certain that this had been done in obedience to a pious custom that is still widely prevalent among the Chinese. Not having access to evidence in Chinese texts I may content myself with supporting this explanation by a reference to the kind of charnel-houses I know to have been erected for the identical purpose at the Chinese cemeteries of Kāshgar, Yārkand, and Khotan after the reconquest of the New Dominion. As regards the customs observed in the original burials, conclusive archaeological evidence has fortunately become available through my subsequent explorations in the Lou-lan area and in closely adjoining tracts.

Evidence of burials at L.H. and Ying-p'an.

At the ancient burial-places of L.H., which must be contemporary with the occupation of Lou-lan, I found coffins containing bodies wrapped up tightly with rags of worn clothing, precisely after the fashion suggested by the finds of L.C.[6] There, too, objects of personal use, articles serving for sepulchral offerings, &c., exactly corresponding in character to those recovered from the grave-pits of L.C., were found deposited by the side of the dead. Equally instructive was it to note there that the coffins, in groups of three or more, had been placed on raised ground safe from moisture, and the shallow pits containing them roofed over after the fashion which must have been common in ordinary houses of the local type.[7] Where these habitations of the dead had been reached by erosion, the coffins and their contents showed exactly the same stage of decay that had overtaken the remains found at L.C. before they were collected and deposited in the common pits. At the Ying-p'an site on the uppermost course of the Kuruk-daryā, I explored in March, 1915, some Chinese graves which may be ascribed approximately to the same period as those of Lou-lan.[8]

[5] Cf. e. g. *Serindia*, i. p. 381; ii. pp. 570, 605 sq., 677 sq., 687, 717, 736, &c.

[6] See below, pp. 275 sqq.

[7] It may be of interest to point out here that the method of placing the coffins in roofed huts, partially or wholly sunk into the ground, which the graves of L.H. illustrate, closely agrees with the indications furnished by Chinese texts as to the earliest forms of burial.

Thus De Groot, *The Religious System of China*, ii. p. 374, tells us how the oldest type of Chinese grave arose from the primitive custom of leaving the corpse alone in the simple hut of wood and clay previously occupied by the living. According to ancient descriptions quoted, this earliest method of burial was still reflected by the graves of the Han period:

'But further, even at the present day the graves in the northern and central provinces of the Empire resemble the huts of the living in ancient times, being round heaps of clay . . . ; the coffin inside is in many cases not sunk deep beneath the level of the soil around, and people hardly ever neglect to cover it with reeds, rushes, or mats before piling the earth over it.'

[8] See below, Chap. xxi. sec. i.

They had been placed on gravel-covered terraces of the Kuruk-tāgh glacis and had thus escaped wind-erosion. There, too, the corpses were bandaged in closely wound rags of old clothing, no longer serviceable to the living. This custom was demonstrated with equal clearness by the numerous examples of complete Chinese burials which I had previously examined in the clay-cut tombs of Astāna, in the Turfān basin.[9] These belong to the early T'ang period and are thus centuries later than the remains with which we are here concerned. But all observations at that place showed that Chinese burial customs had not changed in essentials during the interval.

Reason for re-burying on top of Mesa.

From the evidence thus briefly summarized it may be concluded that the *disjecta membra* of burials collected into the pits of L.C. had originally been sheltered by graves which occupied ground in the vicinity safe from moisture by inundation or irrigation. But this necessarily meant leaving the coffins and other deposits exposed in course of time to the destructive forces of ceaseless erosion by wind-driven sand; for these forces must have been already at work here in ancient times on all ground not protected by vegetation, such as moisture alone can support in this region. My observations at the ruins of the Lou-lan Site and elsewhere prove that the unprotected surface level was here liable to be lowered by wind-erosion by more than a foot per century. Hence the contents of originally shallow graves, dating, say, from the first century before or after Christ, would here frequently be threatened with complete destruction by the latter half of the third century A.D. It is from such graves that pious hands must be assumed to have gathered the mixed remains for which the top of the Mesa L.C., owing to its elevation above the sand-swept plain, offered what has proved a safe last resting-place. The selection of the Mesa for this purpose would suggest itself all the more readily that it was of all such terraces the nearest to the once occupied area around the Lou-lan station. It was also, no doubt, a conspicuous landmark on what we shall have occasion to prove presently was the line of the ancient high road from China.

Approximate date of re-burial.

The above conclusion has a special archaeological importance; for it obviously shifts back the date of the relics recovered from the grave-pits of L.C., and in particular that of the many interesting specimens of ancient textile art to be discussed below, to a period which must be considerably earlier than the *terminus ad quem* fixed for the abandonment of Lou-lan, viz. the second quarter or thereabout of the fourth century A.D.[10] At what epoch the re-burial of the cemetery deposits at L.C. took place we cannot at present indicate with any certainty. If from the few fragmentary Chinese documents found among them and still under examination by M. Maspero any chronological evidence is derivable it would, no doubt, greatly help towards a closer determination. Meanwhile I must content myself with pointing to the fact that, judging from the dated Chinese documents recovered at L.A., the years A.D. 263–70 were the period when the ancient desert route and its western terminal station saw for the last time abundant traffic and activity.[11]

Dating of original burials.

It appears still more difficult to indicate, with any approach to chronological accuracy, the period when the original burials took place. It is obvious that these may have been separated by considerable intervals of time, and in view of the utter confusion in which their remains had been thrown together into the pits of L.C., no attempt could possibly be made to estimate these intervals, even approximately, by the comparative degree of decay exhibited by the relics. In this respect it will suffice to mention that as far as could be inferred from a rapid inspection of such remains at L.H. as still occupied their original position, the state of decay displayed there by the exposed bones, their rag bandages, &c., did not differ strikingly from that in which the remains at L.C. must have been when they were gathered into their final resting-place. It is clear that the destructive effect of wind-erosion may have differed greatly in its rate of progress according to the varying position and construction of the original graves.

[9] See below, Chap. XIX. sec. i–iv.

[10] Cf. *Serindia*, i. p. 426.

[11] See *ibid.*, i. p. 408.

Date of original burials.

Whatever uncertainty, however, may attach to the date of individual burials, a definite *terminus a quo* is fixed for them all by the fact that the Lou-lan route was first opened for Chinese traffic during the last two decades of the second century B.C.[12] It is equally certain that the first century B.C., roughly conterminous with the latter half of the period of the Former Han dynasty, was the time when the Lou-lan route was most frequented by Chinese trade and military and general traffic westwards.[13] We know that its importance was reduced when about A.D. 2 'the new route of the north' leading straight from the 'Gate' of Yü-mên to 'Posterior Chü-shih', i. e. the present territory of Guchen, north of Turfān, was opened.[14] Nor can there be any doubt that the complete break-down of Chinese authority in the 'Western regions', and the prolonged troubles with the Hsiung-nu or Huns which followed the accession of the usurper Wang Mang in A.D. 9, must have very seriously interfered with relations between China and Lou-lan.[15] When in A.D. 73 under the Later Han dynasty a fresh expansion of Chinese power into Central Asia took place and imperial control effectively asserted itself again in the 'Western countries' for about three-quarters of a century, it was by the route leading through the newly secured base of Hāmi that the advance took place. Ever since, this route, far less beset with natural difficulties though longer than the other, has remained the main line of communication between westernmost China and the Tārīm basin.[16]

Chronological limits of remains at L.C.

But the documentary evidence recovered at the station L.A. and discussed in *Serindia* proves that, notwithstanding the much-reduced importance of its route, Lou-lan still retained a small Chinese garrison in the third century, and that traffic between it and Tun-huang, no doubt in much-diminished volume, was maintained down to the second quarter of the fourth century.[17] Hence the only chronological limits that are certain for all the burial remains of L.C. are comparatively wide ones, extending roughly from the very end of the second century B.C. to the latter part of the third century A.D. In order to draw these limits somewhat closer we must look for archaeological evidence in the relics themselves. Fortunately such evidence is not confined solely to the few Chinese records on paper, of which the very material proves an origin later than A.D. 105, the well-established date of the invention of paper.[18] We shall see that archaeological indications, in some cases pointing to earlier origin, are not altogether wanting either for those remains of ancient textile art which form the largest and in many respects also the most interesting portion of the antiquarian discovery made at the grave-pits. There appears accordingly to be the fullest reason why our analysis of the finds should be directed first to these.

MISCELLANEOUS OBJECTS FOUND BETWEEN SITES L.A. AND L.C.

L.A.–L.C. 01. Lump of lead. 13/16" × 13/16" × ⅜".

L.A.–L.C. 02. Flat bronze ring, split at one side. ¾" × ⅝" × ⅛".

L.A.–L.C. 03. Flat bronze ring, similar to L.A.–L.C. 02, but smaller. 9/16" × ⅜" × ⅛".

L.A.–L.C. 04. Fr. of bronze disc, showing relief pattern; prob. not coin. ⅞" × ⅝" × 1/24".

L.A.–L.C. 05. Bronze disc, with hole in centre. Diam. 7/16", thickness c. 1/32".

L.A.–L.C. 06–7. Two stone blades, long, narrow; black and green stone, resp. Length 1½", gr. width ⅝".

L.A.–L.C. 08–9. Two frs. of bronze, thick, of lamellar structure; somewhat corroded. Gr. fr. (*01*) 1 13/16" × 13/16" × 3/32" to 3/16".

[12] Cf. *Serindia*, i. pp. 336 sq.; ii. pp. 724 sq.

[13] See *ibid.*, ii. pp. 730 sq.

[14] Cf. *ibid.*, ii. p. 705.

[15] See *ibid.*, ii. p. 731.

[16] See *ibid.*, ii. p. 732; below, Chap. XV. sec. iv.

[17] See *ibid.*, i. p. 426; for dated documents from L.A., cf. also Conrady, *Funde Sven Hedins*, pp. 98, 102, 117, 126 sq., 137, 139.

[18] Cf. Chavannes, *J. Asiat.*, 1905, jan.-fév., pp. 5 sq.; also *Serindia*, ii. pp. 650, 672.

Section IV.—THE TEXTILE RELICS OF L.C.

The observations already recorded, as to the condition in which the human remains were found here and at the other Chinese burial-places above mentioned, make it clear that we owe the abundance as well as the variety of the textile fabrics recovered from L.C. to the custom of bandaging the dead in closely wound rags of old clothing. The fact that in some cases, e. g. L.C. iii. 017; vii. 07, several pieces of silk of different patterns were found sewn together in the same garment, suggests that these materials had been subject to prolonged wear even before their last use as wrappings for the dead.

Dead bandaged in rags of old clothing.

To trace the history of that custom and its original meaning I must leave to competent Sinologist research. But whatever its explanation may be, it is certain that without it we could not have hoped to recover so multifarious a collection of the fabrics in use among those who, during Han times or in the century immediately after, frequented the ancient route of Chinese expansion into Central Asia or had settled down along it. It is true that these tattered remnants but rarely give a clue to the character of the particular garments to which they once belonged. But this matters little when compared with the technical and artistic interest which so many of the fabrics offer, or with their remarkable state of preservation.

If we classify the textile remains described in the List below according to the materials used, we are at once struck by the predominance of silks, whether plain or decorated. Before proceeding to discuss the manifold points of interest which the technique of these silks and still more the methods and motifs of their ornamentation offer, we may first refer briefly to the other materials found among the textiles of L.C. They comprise wool, cotton and felt.

Materials of L.C. textiles.

The woollen fabrics are the most numerous after the silken, and may, in view of the important part which the production of wool has at all times played in the Tārim basin, be assumed to be largely, if not wholly, of local manufacture. It is therefore of special interest to note the variety of weaving techniques and of methods of decoration represented among them. The descriptions given in Mr. Andrews' valuable notes on the technique of the Ch'ien-fo-tung textiles enable me to deal very briefly with the different weaves among our woollen fabrics from L.C.[1] Apart from 'plain cloths', such as L.C. i. 04, 012, 024, in some cases recalling canvas in strength (L.C. 06. e; v. 028), we have several fabrics which must be described as 'repps' (L.C. v. 011, 018, 025; x. 03). A fine strong texture of the 'cord' kind is presented by the pieces, L.C. i. 01; ii. 05. e, 016; v. 010, to which Mr. Andrews' descriptions in the List below assign the character of 'boxcloth' and a velvety touch.

Woollen fabrics from L.C.

In view of what will be explained below as to the total absence of 'twill' weave among the L.C. and other Lou-lan silk remains, it is of importance to note that the woollen fabrics of L.C. comprise at least two specimens of ordinary twill, L.C. 037–8, besides two pieces of 'damask', L.C. v. 02. b, 026, in which the pattern, composed of lozenges, is due to the use of a variation of 'twill weave'. It is equally interesting to find tapestry work used in quite a number of fine woollen textiles, L.C. iii. 010. a–b; v. 01, 02. a, 03–5, 06. a, 07, 09, 019 (Pl. XXX–XXXII). The decorative motifs of these tapestry pieces will best be considered below in their relation to those exhibited by the polychrome figured silks. But it should be pointed out at this stage that the style of this woollen tapestry work differs strikingly from that of the latter by being of non-Chinese, and in some pieces of distinctly Hellenistic character. It is obvious that this difference in decorative style strongly supports what has been suggested above as to the local origin of the woollen fabrics in general.

Weave of woollen fabrics.

Style of woollen tapestries.

With the tapestry fabrics in wool may be classed also, on account of their material and kindred

[1] Cf. *Serindia*, ii, pp. 897 sqq.

Frs. of woollen pile carpets.

technique, the fragments of woollen pile carpets, L.C. 010; i. 08; ii. 05. c, 09. a–b, 014, 017; iii. 014, 015; x. 02 (Pl. XLIV, LXXXVII). Though comparatively numerous, none of them display their patterns with sufficient clearness to permit of a definite conclusion as to the style of decoration. Bands of 'latch-hook' design are, however, recognizable in several pieces (L.C. 010; i. 08; ii. 09. a), while a lozenge pattern can be made out also in ii. 09. b and stylized flowers in iii. 014. In all fragments a variety of colours is used. In construction they resemble closely the pile carpet fragments found at the Lou-lan station, L.A. I. ii. 001; VI. ii. 0046,[2] and are probably like them products of local industry in the Tārīm basin.

Weaves of cotton fabrics.

Less numerous than the woollen textiles are the fabrics which in the Descriptive List are shown as of cotton. Since it has not been possible to secure for the microscopical analysis of these materials such expert help as Dr. Hanausek rendered for many of the fabrics described in *Serindia*, we cannot be quite sure that in all these pieces the yarn is of cotton and not linen. Hemp is plentiful along the lowermost Tārīm, and its use in some textiles from the Lou-lan station is attested by expert analysis.[3] But of a number of fabrics remains found there and at L.B. Dr. Hanausek's examination has shown that their material is cotton.[4] Hence the classification of the above L.C. pieces is not likely to be altogether wrong. Among the cotton fabrics plain weave prevails (L.C. 04, 036; i. 02. a–b, 06, 07; ii. 02. b, 05. f; v. 016, 024). But in two, L.C. 06. c–d, 035, which are described as 'jean', a twill structure must be assumed. A variation of 'warp-rib', corresponding to that used in the few silk damasks of L.C., appears also in the cotton (?) damask, L.C. i. 011 (Pl. XLII), showing a lozenge pattern. Finally mention may be made here of specimens of felt, found also as lining for garments (L.C. 04. a; i. 06).

Prevalence of silk fabrics.

But far greater importance attaches, whether in respect of material, technique, or artistic decoration, to the silk fabrics recovered. Their prevalence has already been referred to above, and is sufficiently illustrated by the fact that out of a total of 129 entries of textiles in the Descriptive List below not less than 74 concern different silk stuffs, 45 among these being figured silks. Considering the place where these remains were found and the early date which the chronological limits of the site assign to them, there can be *a priori* no doubt that all these silk materials were imports from the interior of China.[5] The fact that they were discovered by the side of the very route which the Chinese had first opened for their direct intercourse with Central Asia and the distant West invests them with special significance. We could scarcely have looked in a more appropriate place for a representative collection of relics of that ancient silk trade which had played so important a part in China's Central Asian expansion, and which had passed along here for centuries.

Interest of early silk fabrics.

But their principal claim to our interest lies in the fact that they open up for us a new and fascinating chapter in the history of that textile art for which China has been famous ever since the products of the silk-weaving Seres first reached the classical West, and the early phases of which might well have seemed lost to us. When those remains of fine silks first emerged from their sombre place of deposit in the utter desolation of the desert I was at once greatly impressed by their wealth of beautiful designs and rich colours, though there was no time for more than rapid glimpses of the feast they offered.

Mr. F. H. Andrews on figured silks.

The hopes then raised as to the light they might throw on the artistic and technical sides of Chinese silk industry during Han times have been justified through the devoted expert labours which Mr. F. H. Andrews has bestowed upon them. The important paper on *Ancient Chinese*

[2] See *Serindia*, i. pp. 384, 433, 438; iv. Pl. XXXVII.

[3] Cf. *ibid.*, i. pp. 384, 433, 438.

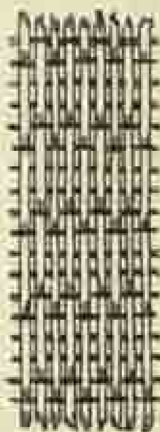
[4] See *ibid.*, i. p. 432 (L.A. 0149); p. 433 (L.A. II. 002); p. 435 (L.A. IV. ii. 001); p. 442 (L.B. II. 0018–20).

[5] With them may be mentioned also specimens of silk waste, like L.C. v. 020; vi. 06, probably used for the padding of garments.

Figured Silks, which he published at my request in the *Burlington Magazine* of 1920, has recorded the preliminary results that his examination of a number of characteristic specimens had yielded. With the help of the very careful illustrations drawn by Mr. Andrews' hand, it brings out clearly the essential features of the distinctly Chinese style displayed by these fabrics, together with many important observations on the origin and development of the ornamental motifs used in them.

Numerous other pieces still await final cleaning [5a] and full analysis of details by the experienced eye and hand of the same artist. But the data already furnished by him in the Descriptive List provide a sufficiently safe basis for the general review I propose to attempt in this place. Its object will be to offer succinct information on the technique of weaving observed in the silk fabrics of L.C.; on the several methods of decoration used in them, and on the characteristic peculiarities of style which their designs exhibit. The observations on technique and style will allow me also to indicate certain evidence derivable from them which has an archaeological bearing and may incidentally help to define more closely the chronological limits for the textile remains of this site and for some recovered elsewhere. Object of review of silk fabrics.

As regards the weaving of the Lou-lan silks Mr. Andrews' investigation has brought out two interesting facts. In the plain silks, i.e. those which show no decorative figuring, a variety of 'plain weave' is always used, corresponding to what technically is known as a 'rib' or 'repp'.[6] In this the weft threads being thicker than the warp, a transverse ribbed effect is produced, more or less pronounced as the relative thickness of the two threads is varied. In respect of the figured silks from L.C. Mr. Andrews in his above-quoted paper has already noted the important fact that the weave is, with the single exception of one loosely woven silk gauze, L.C. iii. 04. d, 'a variation of that technically known as "warp-rib". It may be briefly described as giving a ribbed appearance running across the fabric, due to the number of threads in the warp being greater per inch than that in the weft, and to a particular order of interweaving which is too technical to detail here, but which the diagram of the face of the cloth, greatly enlarged, may sufficiently explain. The figure or pattern is formed by the warp threads and presents a kind of dull satin surface, faintly ribbed.'[7] This character of the weave applies also to the rare 'damasks' from L.C. Weaves of silk stuffs.



This exclusive use of the 'warp-rib' in the Lou-lan figured silks assumes particular significance in view of the fact that 'twill' weave, which would have been most useful and appropriate for the production of designs, whether in damasks or polychrome fabrics, is entirely absent from the large series of figured silks of L.C. Yet this 'most valuable of all weaves from the designer's point of view', as Mr. Andrews has justly described it,[8] is regularly met with in the great collection of Chinese figured silks recovered by me from the 'Caves of the Thousand Buddhas' and is represented with equal abundance also among those brought to light by me from the tombs of Astāna. The fabrics of the latter site can be dated with certainty as belonging to the early T'ang period.[9] The same may safely be assumed of the great mass of the Ch'ien-fo-tung fabrics in so far as they do not belong to the period intervening between the fall of the T'ang dynasty, A.D. 907, and the final walling-up of their place of deposit, early in the eleventh century.[10] Exclusive use of 'warp-rib' weave.

On the other side we have the important fact that all fragments of figured silks excavated by me on the Tun-huang Limes, two of them dating from the first century B.C., and the other not 'Warp-rib' weave of

[5a] [This has since been secured at the British Museum, through the help of the Department of Prints and Drawings, and under Mr. Andrews' supervision.]

[6] Cf. Andrews' 'Notes on the technique of textile fabrics', *Serindia*, ii. p. 897.

[7] See Andrews, *Chin. Fig. Silks*, p. 19.

[8] See *Serindia*, ii. p. 897, where the principle of twill weave is explained.

[9] See below, Chap. XIX. sec. v.

[10] Cf. *Serindia*, ii. pp. 820, 827 sqq.

silks from Han Limes.

more than a century or two later, are in 'warp-rib'.[11] This weave is shown also by an interesting piece from the Ch'ien-fo-tung hoard, Ch. 00118, discussed in Mr. Andrews' preliminary paper and fully described in *Serindia*,[12] which by its very characteristic design attaches itself closely to those finds from the Limes of the Han period.

Later use of 'twill weave'.

From these considerations it appears safe to conclude that the use of twill weave was not known to the producers of Chinese figured silks during Han times and the period immediately following, and that the variation of 'warp-rib' then employed in its stead was subsequently, at some time intervening between the fourth century and the latter half of the sixth (the time of the earliest Astāna burials), abandoned for the more suitable twill. Thus we see that a very useful criterion of the date of Chinese figured silks can be derived from the weave technique employed.

Introduction of 'twill weave.'

We have at present no definite evidence as to where twill weave first originated. But a valuable indication as to its possible introduction from regions west of China may, perhaps, be deduced from the fact that varieties of twill weave are actually found in at least four woollen fabrics (L.C. 037–8; v. 02. b, 026) as well as in several cotton stuffs.[13] Considering that wool is a material which at all periods must have been abundantly produced and put to textile use in the Tārīm basin,[14] and further that all the woollen tapestry pieces from L.C. show in the style of their designs unmistakable Hellenistic influence suggesting production west of China,[15] it appears probable that twill had been established in use by the local weavers of the Tārīm basin long before its adoption by the silk industry of China. On the other hand, it deserves to be noted that among the woollen and cotton fabrics from the Tun-huang Limes which may be presumed to be of Chinese manufacture and which are either earlier than, or coeval with, the corresponding textile relics from the L.C. graves, I have not been able to trace any use of the twill weave.

Polychrome figured silks prevail over damasks.

Among the methods of decoration applied to the texture of the silk fabrics themselves, that of inwoven patterns or 'figures' is by far the most general. With the exception of the few specimens in monochrome described as 'damasks', all the figured silks are polychrome.[16] In all of them the colours, whether restricted to two only to bring out figure and ground, or else used in greater variety, are rich and always harmonious. Nothing could demonstrate better the high state of perfection that the silk-weaving craft of China had reached in the Han period, and no doubt for a long time before it, than the exquisite art observed in the execution of almost all these specimens. The almost exclusive use of a polychrome scheme of decoration in the figured silks from L.C. contrasts curiously with the fact that in the Ch'ien-fo-tung hoard specimens of patterned damasks and gauzes are quite as numerous as polychrome fragments.[17] In this difference we may probably recognize a result of the far greater facilities offered for damask decoration by the later introduction of twill weave.

[11] Cf. *Serindia*, ii. pp. 704, 781, 783, 785; iv. Pl. LV; also Andrews, *Chin. Fig. Silks*, pp. 14, 19.

[12] See *loc. cit.*, p. 14 with Fig. 10; *Serindia*, ii. pp. 911 sq., 963 sq.

[13] See above, p. 232.

[14] Cf. *Serindia*, iii. p. 1578, Index, *s. v.* woollen fabrics. Among the woollen fabrics recovered in 1906 from the Lou-lan station the polychrome material L.A. IV. 004 (*Serindia*, i. p. 434; iv. Pl. XXXVII) shows also a variation of twill, sateen weave. A similar technique is probable also in the polychrome fabrics, L.B. IV. ii. 0014, 0016 (*Serindia*, i. pp. 445 sq.).

Twills are represented also among the woollen fabrics, E. Fort. 0012 (*Serindia*, i. p. 292), recovered from the ancient refuse beneath the fort walls of Endere which belongs approximately to the same period as the Lou-lan remains.

[15] Cf. below, pp. 241 sq.

[16] For facility of reference a list of all the figured silks may be given here as distinct from the notes in the text, which treat them with regard to their designs. Polychrome figured silks are found under the following numbers (o preceding figures omitted): L.C. 01–3, 7. a–b, 8, 31. a–c; i. 06–7, 9–10; ii. 01, 3, 4, 5. a, 7. a–c, 8. a, 11; iii. 01, 2, 4. a–d, 11–12, 16–20; v. 014, 17, 23, 27. a–b; vi. 03; vii. 02, 7; ix. 02; x. 04. 'Damasks', i. e. figured silks in monochrome, are found in L.C. 033; ii. 05. b; v. 013; vi. 01; vii. 09.

[17] Cf. *Serindia*, ii. p. 901.

It is certainly curious that tapestry work, the technique nearest akin to pure loom work, is not represented at all among the silk fabrics of L.C., while we have from the same site quite a number of fine tapestry fragments executed in wool.[18] This absence of silk tapestry work may be purely accidental, and this is the more probable seeing that a small number of specimens, among them one or two that appear distinctly early in style, are found among the Ch'ien-fo-tung textiles.[19] Or might the suggestion be hazarded that this technique of hand-work on the loom with the needle was an acquisition from the West? That it existed there is attested from very early times by Assyrian reliefs as well as by Greek vases of the sixth century B.C.[20]

Absence of silk tapestry.

Finally among methods of decoration applied to finished textiles we find embroidery on silk illustrated by a number of interesting specimens.[21] The work is always in chain-stitch and shows the same minute care in its execution that has continued to distinguish Chinese needlework down to our days. The prevalence of more or less naturalistic floral designs is as marked as in the numerous embroidery pieces from the 'Thousand Buddhas' and in those recovered from the T'ang graves of Astāna. This gives to the work of all of them a curiously modern appearance. Akin to embroidery is the decoration of the rich red silk, L.C. 09. a, consisting of small square metal beads sewn on to the fabric. Mention may here be made also of two small silk bags, L.C. iv. 01. a–b, Pl. XLIII, covered with a patchwork of small pieces of different coloured silks forming a geometrical pattern.

Silk embroidery.

Section V.—THE DECORATIVE DESIGNS OF THE L.C. FABRICS

The material, technique of weave, and methods of decoration in the silk fabrics from L.C., as we have seen, offer points of considerable archaeological interest. But that attaching to the designs found in the figured silks and to the style they reflect is far greater still; for these relics bring before our eyes, often in surprising freshness, specimens of the earliest stage so far known in that glory of China, its decorative textile art—a stage which but for the two or three fragments from the Tun-huang Limes seemed completely lost to us. Better than any comments or analysis Plates XXXIV–XLIII, containing reproductions of selected tissues and of drawings of patterns prepared under Mr. Andrews' care, will show the perfection of design and technical execution reached at that stage. It is such as might well be expected in the original home of silk weaving, and at a period when, according to historical evidence, that ancient Chinese craft already looked back upon a past of many centuries.

Interest of designs in figured silks.

The early date of the specimens and the fact that silk production was still at that time a monopoly of China would necessarily prepare us for a style of design distinctly Chinese, such as the great mass of decorated silk fabrics from later phases of the industry in China exhibit. Yet, as Mr. Andrews has justly observed in the introductory remarks of his paper, the first impression derived from a casual examination of these relics might well be 'the absence of general resemblance to anything in textiles with which we are familiar'.[1] Closer investigation of details, however, soon awakens 'recollections of kindred forms used in various materials, and first of all those of the tomb sculptures of the Han period'. It would be an interesting task on the one hand to examine these links with approximately contemporary Chinese sculpture and earlier remains of Chinese plastic art, and on the other to trace the influence of those earlier textile designs upon the patterns of the figured silks of T'ang times which the Shōsōin Collection and the hoard of the 'Thousand

Style of decorative designs in silks.

[18] See below, pp. 241 sq.
[19] Cf. *Serindia*, ii. p. 901; iv. Pl. CVI, CXII.
[20] Cf. von Falke, *Seidenweberei*², p. 1.
[21] See L.C. 032, 33; v. 013; vii. 04, 5.
[1] Cf. Andrews, *Chin. Figured Silks*, p. 4.

Buddhas' have preserved for us. But neither this task nor a systematic review of the stylistic motifs in our figured silks from Lou-lan can be attempted here.

Types and groups of designs in silk tissues.

The aim of the following notes will be merely to distinguish the main types and groups into which the designs of these tissues may be divided, and to indicate briefly the chief features which are characteristic of each, giving references to individual specimens. My remarks must necessarily be based on the detailed descriptions which Mr. Andrews' competent hand has supplied in the List below, and on the very instructive synopsis of the prevailing schemes and motifs with which he concludes the paper I have repeatedly quoted.[2] When dealing with these oldest extant remains of Chinese textile art, discovered, as it were in transit, by the side of the very route which for centuries had served China's earliest silk trade with Central Asia and the distant West, the question necessarily suggests itself as to the influence its designs may have exerted in those 'Western regions'. This question, in the present state of our knowledge, may not be capable of a definite answer. But in view of its archaeological interest we shall be justified in considering it after we have also examined the designs, of a strikingly different type, which the woollen tapestry pieces from L.C. present.

Types of decorative designs.

The decorative designs shown by our L.C. silk fabrics may be classed under three main types. The first and most frequent is characterized by the predominance of animal figures, surrounded and set off by a wealth of fine scrolls which in most of the fragments are derived from cloud forms and in others suggest a floral origin. In the second type the essential element of the decoration is formed by scrolls and floral motifs, either naturalistic or stylized. The third type is represented by a variety of geometric designs, among which diapers based on the lozenge motif prevail. The designs of all three types are of an 'all-over' character. The total absence of 'spot' patterns has been duly emphasized by Mr. Andrews.[3] It is all the more noteworthy in view of the frequency of such patterns, not only in the earliest Western silks, but also among the Chinese fabrics of T'ang times recovered from the Ch'ien-fo-tung hoard.

Designs with animal figures.

The designs of the first type must claim our special attention not merely because they are the most numerous but still more on account of their great artistic interest. The art value attaching to them is seen to full advantage in the animal figures that form their most striking feature. In these figures we see expressed with remarkable skill that faculty for correctly observing and graphically rendering movement in nature which ever since Han times may be claimed for Chinese art as one of its greatest merits. Among the animals represented in our silks the diversity is great. But whether they are lions, tigers, rams and other beasts taken from nature, or dragons, griffins and other strange monsters created by fancy, their forms and actions are always shown instinct with a wonderful sense of life. The feline form in movement, stealthily prowling, gathering for the jump, leaping, appears to have particularly stirred the artist's eye and hand, as shown by some of the finest designs of this type. There is a very happy harmony between these vividly rendered movements and the lithe freedom of the cloud scrolls which in many of the designs entwine the animal forms. Their various types, as distinguished in Mr. Andrews' paper,[4] have, like so much else in these figured textiles, a close and unmistakable affinity to decorative motifs in the sculptural work of Han tombs. On the other hand, they often strangely recall Rococo forms. This resemblance is scarcely accidental, if some indebtedness of the Rococo to the influence of contemporary Chinese art must be admitted in general.[5]

The qualities here indicated in all briefness are, perhaps, best illustrated by the fine polychrome

[2] See Andrews, *Chin. Figured Silks*, pp. 18 sq.

[3] See *ibid.*, p. 18.

[4] Cf. *ibid.*, pp. 4 sq., 18 sq.

[5] See *ibid.*, p. 19; regarding Chinese motifs in French figured silks of the Rococo style, cf. Migeon, *Les arts du tissu*, p. 81; von Falke, *Kunstgeschichte der Seidenweberei*[2], p. 47.

silk fragment, L.C. 07. a (Pl. XXXIV), also reproduced by Mr. Andrews' hand in Fig. 2 of his paper. The pattern extends to the full width of the material and is fortunately preserved complete with the selvedges at both ends. It shows a procession of six monsters all moving to the left. The fantastic shapes vary greatly, from the winged tiger on the right to the horned dragon on the left. The poses are different, too, but in all of them the feline nature of the beasts is cleverly marked. 'The whole scheme', as Mr. Andrews observes, 'is flowing or drifting from right to left, a movement expressed not merely in the graceful action of the animals, but in every line of the scrolls. Each beast has individuality and is a delightful study.' Between the first and last pairs of monsters a standing duck or goose is introduced at right angles to the line of animals, an arrangement characteristic also of a group of other designs to be noted presently. The Chinese lapidary characters which appear above or by the side of the animals have been tentatively interpreted by M. Arrousseau as containing on the right the mention of a 'polychrome figured textile' 繡 *hsiu* coupled with the family name 韓 *Han* and with what may be a personal name, 仁 *jên*, and farther on a benedictory formula for succeeding generations.[6]

Design in 'procession of monsters' stuff.

Very closely allied with this fine design is another which is illustrated by the reproduction of the fragment L.C. iii. 011 (Pl. XXXIV) and variations of which are found in a number of other polychrome pieces.[7] It shows a horseman riding on a high-stepping mount towards a horned beast, rampant, and followed by two winged monsters and a leopard-like creature, all grotesque and rampant. A peculiarly interesting feature of this design is the horseman and his mount, which, as seen in Mr. Andrews' drawing, Pl. XXXVIII, show a striking resemblance in general design and pose to certain riding figures sculptured in the bas-reliefs of a Han tomb in Shan-tung belonging to the early second century A.D.[8] The treatment of the cloud scrolls likewise displays a close affinity to some of the ornamental motifs in these sculptures. The zigzag arrangement of the figures results in the formation of diagonal rows of beasts, thus reproducing with pleasing freedom the effect of the lozenge diaper, a favourite scheme of these Chinese all-over patterns. The four Chinese characters to the right of the horseman have been read by my lamented friend and secretary Chiang Ssŭ-yeh as 長樂明光 *Ch'ang lo ming kuang*, '[May you] ever [be] happy [and your] faculties [remain] bright', a common inscription on scrolls at an early period.

With the above designs must be grouped also that of L.C. iii. 017. a, in which two winged monsters figure beside a striding lion, all amidst 'vermicular' cloud scrolls. We have already noticed as a subordinate but peculiar feature in the design of L.C. 07, that near the beginning and end of the 'procession of monsters' birds are introduced turned at right angles to the monsters. This arrangement reappears conspicuously, and with a frequency suggesting a well-established convention, in a series of designs otherwise closely allied to those previously described. Thus in L.C. ii. 03 (Pl. XXXIV, XXXIX) we see the figure of a duck, comparatively large, standing between a winged tiger-like beast leaping down on the right and a winged goat or deer leaping or flying upwards on the left. Mr. Andrews points out that 'the collar worn by the first beast recalls a similar feature in Western and Near Eastern textiles of all periods from those of Antinoë of the sixth century onwards'.[9] The three Chinese characters that have survived must be supplemented,

Monsters in other designs.

[6] See *B.E.F.E.O.* xx (1920), pp. 175 sq. Mr. Andrews points out to me that the entries proposed under (f) and (g) of the reading must be omitted, as they refer to details which form part of the design and are not Chinese characters.

[7] See the entries L.C. i. 09; ii. 07. a; iii. 01 (Pl. XXXIV), 017. c, 019.

[8] Cf. Chavannes, *Mission archéologique*, i. Pl. XXVI, No. 47.

[9] See Andrews, *Chin. Figured Silks*, p. 8, where reference is made to von Falke, *Seidenweberei*[2], Fig. 16, and Strzygowski, *Koptische Kunst*, p. 57, Fig. 72.

according to Chiang Ssŭ-yeh's interpretation, by a fourth which figured on the torn portion to the left of the fragment, the whole making up the propitious formula, well known on scrolls, 延年益壽 *Yen nien i shou*, i. e. ' may you enjoy long life '.

Birds crossing rows of monsters.

Another design of this character is shown by the pieces L.C. i. 06–7; iii. 04. c, 12 (?), 17. b, 18, all fragmentary (Pl. XLII). The pattern comprises within a ' vermicular ' cloud scroll a winged dog-like beast springing downwards; in front of it a plump partridge-like bird standing at right angles to the general line of beasts; a striding leopard and a lizard-shaped monster. In the well-preserved piece, L.C. 08 (Pl. XXXIV), executed in a number of still brilliant colours, a rich cloud scroll of ' tree-coral ' appearance meanders across the fabric. In its bends are shown alternately a winged lion striding menacingly to the left with mouth open, and a duck in rapid flight downwards with outstretched neck. Here, too, the effect attained is that of rows of birds crossing rows of monsters at right angles.

Confronting animals in designs.

The same arrangement is typically illustrated also by the fragment of damask, L.C. vii. 09 (Pl. XL), the design of which offers a twofold interest. In it zigzag bands, ornamented with a simple fret and ' faulted ' at the corners, provide a near approach to a geometrical ' all-over ' pattern of the lozenge type. Within the lozenges are placed pairs of confronting animals, a motif frequent in our early Chinese silks and easily accounted for in textiles of whatever period and origin by the convenience which the ' turn-over ' method, by producing symmetrical figures, presents to the designer and weaver. In the centre band shown by the drawing, each lozenge contains a pair of crane-like birds confronting and regardant, with scrolled plumage. In the band of lozenges above, pairs of dog-like animals are placed feet against feet on a line which cuts the line of birds at right angles. In the band below, the lozenges are filled by pairs of winged and horned beasts, rampant, similarly placed.

Simplification into geometrical pattern.

Closely allied in its scheme is the design of L.C. v. 027. a (Pl. XLIII), found also in another fragment, L.C. i. 010. Here pairs of confronting rams, moving as if to butt one another, occupy the lozenges of an 'all-over' geometrical diaper. Variety is introduced by reversing the pair of confronting animals in the vertical direction at each repeat. A striking illustration of simplification of pattern is provided by the fragments described under L.C. v. 023, 027. b (Pl. XLIII), where this design appears transformed into a purely geometrical one. The confronting animals have here degenerated into a stiff kind of cloud scroll, and the rosette at the crossings of the lozenge lines into a plain square. As usual in the geometrical patterns from L.C., the colours are reduced to two only as against three in L.C. v. 027. a.

Reversal of confronting figures.

We have, in the design of the polychrome silk L.C. 031. c (Pl. XXXIV, XXXIX), an interesting example of the confronting figure scheme produced by reversal. It shows the curious Puck-like figure of a sprite seated in profile within a cloud scroll, and slightly above it, and in front, the figure of a bird, regardant. The reversal of the pattern on a vertical line close to the bird's tail results in a pair of addorsed birds and a pair of confronting sprites. For some observations of interest on details produced by the ' turn-over ' method in this design, reference may be made to Mr. Andrews' paper.[10]

Fused design with tree-like feature.

Still more instructive in this respect is Mr. Andrews' analysis of the strangely complex design of L.C. 07. b (Pl. XL). Its successive registers show, above, two birds facing with outstretched necks; next, a pair of confronting griffins above the grinning heads of two very stylized monsters, and at the bottom what looks like an arched shrine occupied by a pair of grotesque animals kneeling face to face, and by its side a smaller pair of arches. The upper registers are surrounded by cloud scrolls, portions of which reversed assume a curious resemblance to a tree with stiff symmetrical

[10] Cf. Andrews, *Chin. Figured Silks*, p. 8.

foliage. Mr. Andrews interprets this rather confused design as a 'clumsy adaptation of fragments of three or possibly four different cloud scroll patterns, treated by the turn-over method whereby exact bi-symmetrical schemes are obtained producing new and adventitious forms'.[11] The point here raised as to the possible origin of certain peculiar motifs, such as the feature recalling the so-called 'tree of life' of 'Sasanian' and other Near Eastern textiles, fully deserves to be kept in view by future investigators.

Before we turn to patterns composed mainly of floral motifs or scrolls, we should notice a small but important group of designs, also showing animal figures but strikingly different in style from the fabrics so far examined. This group is represented by two fragments, L.C. ii. 01 (Pl. XXXVI) and L.C. x. 04 (Pl. XXXV), the designs of which agree closely in the figured subject, treatment and colour scheme, but differ in scale. The most striking feature in both is the introduction of that characteristically Chinese ogre, the 'T'ao-t'ieh', and the extremely stiff, distinctly archaic execution of all details, which is strangely reminiscent in some ways of Pacific work. In L.C. ii. 01 (Pl. XXXVI, XL), which has been illustrated and fully described already in Mr. Andrews' paper,[12] we have on the right a frontal view of the T'ao-t'ieh, in very angular drawing, showing the monster's disproportionately large head with grinning jaws and huge hexagonal eyes. Bandy legs project below, with spines bristling from elbow to ear. To the left of the ogre and separated from it by a tree indicated in symmetrical outline, a winged lion, passant, is drawn in a style which in simple silhouette treatment and vivacity closely recalls the figurative work of Han bas-reliefs. A second tree, far less stiffly drawn, with curving stem and branches, stands between the lion and the hind part of a stealthily moving dragon. The pattern is repeated vertically in close-set rows. The colours are rich, but confined to a dark yellow-brown for the ground and a dark bronze-green for the figures.

Archaic figure of 'T'ao-t'ieh'.

The design of the fabric L.C. x. 04 (Pl. XXXV, XXXVII), preserved in numerous pieces in a ragged state and difficult to open, consists of an extremely close but much larger rendering of the T'ao-t'ieh as seen in L.C. ii. 01, and of a winged lion, similar in type to that of the latter fragment, but facing the monster in the manner of a heraldic supporter. Here too the pattern repeats vertically quite close, and the colours are restricted to two—rich blue and golden yellow.

By their style and treatment alone these two fabrics could clearly be recognized as the oldest among our figured Lou-lan silks. But definite archaeological evidence of this has been provided by the fortunate discovery of a patchwork of figured silk, T. xxii. c. 0010. a, closely allied in style and treatment of pattern, at one of the watch-towers of the Tun-huang Limes explored by me in 1907. The early date of this fabric is fixed with fair chronological exactness by a Chinese wooden document, dated 98 B.C., which was found in the same refuse heap. As the patchwork has already been fully described and illustrated by Mr. Andrews in *Serindia*,[13] there is no need to refer here in detail to the elements of the pattern. It will suffice to state that it is an 'all-over' diaper of diagonally placed squares, with groups of four highly stylized ogre heads forming symmetrical bosses at the crossings of the straight cloud scrolls that enclose the squares. Within the squares two different patterns alternate diagonally. In one a pair of dragons confronts a pair of phoenixes; the other shows two uniform pairs of birds, placed feet to feet.[14] The close connexion between this design and that of the last two L.C. fabrics is clearly recognizable in the stylized ogre heads; in the silhouette treatment of the figures, which conforms to the archaic convention of the ancient bronzes; and also in the stiff angular shapes, probably meant for trees, that form the centres of the squares. There can be no doubt that we have in all three fabrics specimens of a decorative

T'ao-t'ieh stuff from Han Limes.

[11] See Andrews, *ibid.*, p. 9.

[12] Cf. *ibid.*, p. 12, Fig. 8.

[13] See *Serindia*, ii. pp. 720, 785 sq.; iv. Pl. LV, CXVIII; also Andrews, *Chin. Figured Silks*, pp. 12 sq., Fig. 9.

[14] M. Goloubew, *B.E.F.E.O.* xx (1920). p. 173, suggests that these birds may be meant for *hua chung* ('flowery bird').

textile style which preceded that shown by the rest of the L.C. animal figures, and in which strict adherence to archaic tradition in subject and treatment was the dominant factor.

Cloud scrolls and floral motifs.

Among specimens of the second type of textile decoration mention may be made first of a few fabrics ornamented only with cloud scrolls, such as have already become familiar to us as an accessory feature in the designs discussed above. In the pattern of L.C. iii. 02 (Pl. XXXIV) a rich effect is attained by the graceful grouping of several non-continuous cloud scrolls of the 'tree-coral' variety, set off by brilliant colours on bronze ground. The same description applies to the pattern shown by the strips of rich figured silk forming the surface of the garment L.C. vii. 07. In L.C. v. 014 the scrolls, of 'stepped' outline, are too indistinct for the pattern to be made out in detail. But there is a larger number of designs made up of floral motifs, whether worked up into stylized scrolls or naturalistically treated. Of scrolls mainly floral in motif we have two interesting examples. In the polychrome fabric, L.C. 03 (Pl. XXXV, XXXIX), of which there are more fragments in L.C. 07. c, the unit, repeated both horizontally and vertically, is small but amply articulated. It is made up mainly of scrolled stems and lily-like flowers, with a small duck standing regardant between the latter on the top. The single lapidary Chinese character between the repeats has been read by Chiang Ssŭ-yeh as 樂 *lo*, 'happy.'

Stylized floral shapes.

The fine design shown by L.C. 02 (Pl. XXXV) is too elaborate for detailed analysis here, but can be well studied in Mr. Andrews' drawing (Pl. XLI) with the help of his full description in the List. It is of particular interest because it combines a variety of floral shapes, such as bell flowers, trailing stems and roots; also geometrical elements, such as lozenge volutes, and even fantastic beast-like forms. Mr. Andrews' artist eye recognizes in the whole 'a wonderfully ingenious pattern showing perfect mastery of the design of an all-over treatment'.[15] M. Goloubew too acknowledges the perfection of the general effect, but is inclined to detect in the details indications of a certain inexperience in the use of stylized plant forms, suggesting the birth of a new style.[16] The fragment L.C. iii. 020 with its fine floral pattern, including a stylized palmette on bell-shaped ground, is too small to afford evidence on this point.

Floral design in embroidery.

However this may be, it is important to note that we find the tendency towards the naturalistic treatment of floral motifs, which is so marked in Chinese textile work of T'ang and later times, attested already by designs of the embroidered silk fabrics from L.C. It is clearly seen in the decoration of the embroidered comb-case, L.C. 033 (Pl. XLV), and also in the numerous fragments of graceful embroidery described under L.C. vii. 04–5 (Pl. XXXV, XLIII). The piece used as a cover for the badge-like pad L.C. v. 013 (Pl. XLV) is too small to give a definite notion of the ornamental design used for the embroidery from which it was cut. Few as these specimens are, they suffice to bear out what has been said elsewhere about the greater freedom in the use of naturalistic floral design that is enjoyed by the embroiderer's needle, as compared with the technical limitations imposed by the weaver's loom.[17]

Geometric designs.

Among the 'geometric' designs that form our third type, those showing various kinds of lozenges, made up into an 'all-over' lattice-work, are by far the most frequent. In some instances the lozenges are diversified by the insertion of small rectangles or other simple geometric devices. With a few exceptions only two colours are used.[18] This restriction to two colours is observed also in the remaining 'geometric' designs. Among them we find an angular meander, L.C. vii. 02

[15] See Andrews, *Chin. Figured Silks*, p. 10.

[16] Cf. *B.E.F.E.O.* xx (1920). pp. 173 sq. M. Goloubew believes that in the curious feature described as a jewelled chain stretching in a curve over the back of a beast-like form may be recognized the emblematic image known as 'the stars' (*hsing chen*); *ibid.*, p. 174, note 2.

[17] Cf. *Serindia*, ii. p. 904.

[18] See L.C. 01 (Pl. XXXV); ii. 07. b (Pl. XXXIII), 08. a; iii. 04. b (Pl. XXXVI); vi. 01 (Pl. XLIII), 03. Plain lozenges are found in L.C. 032 (Pl. XLII); ii. 04. Four colours are used in L.C. 01, three in ii. 07. b.

(Pl. XXXV), with square dots and Chinese lapidary characters, and a check, L.C. iii. 04. d, executed in gauze. In L.C. v. 017 (Pl. XLII) rows of rectangular billets are combined with rows showing a variety of other simple patterns.

Billet pattern in yellow and blue.

But more interesting from the antiquarian point of view than any of the preceding is the pattern in L.C. 031. b (Pl. XXXV, XLII); ii. 05. a, composed of rows of rectangular billets, elongated octagons, and an angular meander; for it is almost identical with that of T. xv. a. 002. a, a figured silk fragment excavated by me at a watch-station of the Tun-huang Limes, the dated Chinese documents from which extend from 53 B.C. to A.D. 137. The fragments of this fabric found at L.C. can thus safely be ascribed to the first two centuries of our era or the period of traffic through Lou-lan immediately preceding. The colouring is a deep golden yellow for the pattern and a rich blue for the ground, as also in the Limes fragment. This very effective colour scheme prevails among the 'geometric' designs, and is frequent also among other silk fabrics of L.C. and the Tunhuang Limes. This helps still further to confirm the close chronological relation of the two series of textile remains.

Non-Chinese designs in tapestries.

Having seen that the designs of all the figured silks reviewed are clearly and exclusively Chinese, we must all the more be struck by the contrast presented by the designs of the woollen tapestries. A reference to Pl. XXX–XXXII will show that while there is nothing distinctively Chinese in the general style of any of the ten tapestry fragments, the designs of the most characteristic among them bear the unmistakable impress of Hellenistic art influence.

Human head in Hellenistic style.

This manifests itself most clearly in the fragment L.C. iii. 010. a (Pl. XXX). It probably is part of a decorative hanging of remarkably fine workmanship. It shows on the left the portion of a human head, quite Western in type, rising with its neck over a draped shoulder, and to the right of it a caduceus-like symbol separating this figure from another, of which little but part of the drapery of one shoulder survives. The treatment of the facial features, the use of chiaroscuro and of different flesh tones for modelling, also the conventions followed in outlines and colouring, exactly agree with the work seen in the wall-paintings of the Mīrān shrines M. III and M. V, as a comparison with the remains reproduced in *Serindia* will demonstrate.[19] The purely Graeco-Buddhist character and Hellenistic inspiration of the Mīrān 'frescoes' have been established in the same work. The evidence furnished by this close relationship in style and execution between the Mīrān work and the tapestry is particularly valuable because it makes it appear very probable that the latter, brought to light in the same Lou-lan region, was also produced within the Tārīm basin and not an import from the distant West.

Designs of 'Coptic' type in tapestries.

The fine tapestry work L.C. v. 01 (Pl. XXXI) is also quite Hellenistic in effect. The design, purely geometric in this case, is executed with great care in a wide range of harmonious colours and is very beautiful. The fret forming Svastikas and the chevrons with midribs ending in square spirals, which form the ornament of the centre band, recall motifs frequent in the 'Coptic', i. e. late Hellenistic art of Egypt.[20] The shading of the material on either side of this band into a succession of rainbow colours is done by a technique also common in 'Coptic' tapestry work. Quite classical in effect is the graceful pattern of undulating leaves and spirals which forms a border or 'guard' on both sides. We have a well-designed pattern of imbricated lily-shapes of the fleur-de-lis type, executed in various colourings and flanked by rainbow bands, in the fragment L.C. v. 06. a (Pl. XXXI) made up of several pieces. Here, too, 'Coptic' work is recalled by the design and technique. The fragments L.C. v. 03–5 (Pl. XXXI) introduce us to a debased rendering of the same pattern in a rather coarse execution. The tapestry strip L.C. v. 019 (Pl. XXXI) is finely worked, but shows only bands of transverse bars and small chequers in a variety of strongly contrasting colours.

[19] See *Serindia*, iv. Pl. XL–XLIV. As regards the subjects, technique, &c., of these fine tempera paintings, cf. *ibid.*, i. pp. 497 sqq., 514 sqq., with Figs. 133–43.

[20] Cf. e.g. Strzygowski, *Koptische Kunst*, p. 67, No. 7340; p. 80, No. 7356 (4); p. 130, No. 8790; von Falke, *Seidenweberei²*, Figs. 9, 10.

Western motifs in tapestry L.C. v. 02. a.

But of far greater interest than the last few specimens is the design of a carefully worked tapestry, L.C. v. 02. a (Pl. XXXI, XXXII), which in spite of its ragged condition has well preserved its fine colours. Its design has been drawn and fully discussed already by Mr. Andrews in his paper.[21] The general scheme of the design and most of the decorative motifs betoken Western inspiration and models. We have evidence of this, in the first place, in the rigid division of the whole into a broad centre band with three narrower longitudinal bands or 'guards' repeating on either side. Two of these show treatment in rainbow shading. The band between these two is ornamented with a pattern in which a heart-shaped flower or closed palmette alternates with a pair of shear-shaped leaves resting their base on volutes. Heart-shapes repeating in the same direction are a motif quite common in late Greek and 'Coptic' work in Egypt, as illustrated by numerous textiles from Antinoë and elsewhere,[22] as well as in Byzantine and 'Sasanian' fabrics from the sixth century onwards.

Chinese motif of horse-legged bird.

Hellenistic influence is recognizable also in details of the broad centre band. Its subject 'is a bird rising from a nest between a pair of confronting horse-legged birds. This is repeated, but with an interval in which is a symmetrical scroll pattern'. Such details are the acanthus-shaped 'nest' from which the breast and head of a bird emerge, and the symmetrical scroll ornament, dividing the repeats, which resembles two anthemions reversed. Very different in origin, however, is the form of the two horse-legged birds which confront each other on either side of the nest. Type and pose, as well as the cloud scroll below, indicate the closest connexion with the horse-legged bird seen galloping over a cloud in the relief sculpture of a Han tomb.[23] As this particular form of a composite monster is not traceable in any Western design so far known, we may safely attribute its appearance as a motif in our tapestry pattern to a Chinese origin. On the other hand, the identity of the technique with that of 'Coptic' tapestries and the close affinity of the rest of the decorative details to those found in 'Coptic' and in late Greek textiles make it appear highly probable that this piece, like the other tapestry remains from L.C. and two more from other Lou-lan sites to be mentioned farther on,[24] was a product of local craftsmanship, whether in the Lop region or elsewhere in the Tārīm basin.

Chinese art influence in Tārīm basin.

We are thus justified in recognizing here a definite indication that Chinese art had already exerted its influence in the Tārīm basin during Han times, even though Graeco-Buddhist tradition was then and remained for centuries the predominant element in the decorative style, as in most of the civilization and art, of those 'Western regions'. We have ample evidence to show how powerful that influence of Chinese art had become in T'ang times, and know that it had asserted itself already long before.[25] It is *a priori* likely that it made itself from the first particularly felt along the great trade route leading from China into Central Asia, and we can scarcely feel surprise at coming across the earliest approximately datable evidence of it just by the side of that route and in the form of a textile product. For decorated textiles have at all periods served as the most portable means for the transmission of artistic motifs and treatment, and no more convenient tool

[21] See Andrews, *Chin. Fig. Silks*, pp. 16 sq., Fig. 15. By an oversight the material of the tapestry has there been erroneously indicated as silk instead of wool.

[22] See e.g., Strzygowski, *Koptische Kunst*, p. 153, No. 7211; von Falke, *Seidenweberei*², Figs. 9, 10, 18, 19, 21, 33, 34, 39, 52, 54, 55.

Cf. also Strzygowski, in *Jahrbuch der k. preuss. Kunstsammlungen*, 1903, p. 152. The pair of shear-shaped leaves rising from a voluted base appears in a modified form on a Coptic tissue of the British Museum; cf. Migeon, *Les arts du tissu*, p. 37.

[23] See Chavannes, *Mission archéol.*, i. Pl. LXX, No. 134. This connexion, like those which are traceable between the motifs of L.C. figured silks and of Han tomb sculptures, was first pointed out by Andrews, *Chin. Fig. Silks*, p. 18.

[24] See below, p. 277.

[25] Cf. *Serindia*, i. p. 298, regarding the images in Chinese style which Sung Yün saw in A.D. 519 at Tso-mo or Charchan, and which were described to him as dating from Li Kuang's expedition, A.D. 384.

for the reproduction of motifs carried westwards by the export trade of Chinese figured silks could well have offered than the local tapestry weaver's needle.

Silk trade carries textile designs westwards.

Thus we are finally led to consider the question whether figured fabrics from China affected also the textile designs of countries farther west than the Tārīm basin. Once the Central-Asian route had been opened and secured towards the close of the second century B.C., the flourishing silk trade must have carried these in abundance across to Īrān and thence to the Mediterranean regions. Professor J. Strzygowski was the first to raise this important question in a very stimulating paper. Basing himself mainly on comparisons of style, supported by certain historical notices, he had answered it in the affirmative as regards Īrān and the Hellenized Near East.[26] This would not be the place to examine the arguments upon which an art historian distinguished by such breadth of vision based his theory, even if I had access in my Kashmir camp to all the materials bearing on the problem. Nor do our Lou-lan finds of Chinese figured silks, as exported in Han times, supply archaeological evidence sufficient to decide it. I must therefore restrict myself to a few observations on points which, I think, deserve to be kept in view.

Classical mention of imported Chinese silks.

In the first place it should be remembered that among the abundant classical data referring to the silk brought from the distant Seres we have Pliny's important testimony to the fact that Chinese silk fabrics, not merely the raw material of spun silk, were carried to Syria to be there unravelled and re-woven.[27] That silk fabrics reached the Mediterranean even before our era can be concluded from Ovid's reference in his *Amores* published B.C. 14 to 'vela colorati qualia Seres habent'.[28] Even in Byzantine times silk fabrics from China were to be found in the Near East and were brought into the Eastern Roman Empire, as shown by a notice of Leo Diaconus.[29] But it is difficult not to attach weight to Mr. Dalton's argument that the absence of designs which can be identified as Chinese upon early surviving silks in the West 'is against the supposition of any important Chinese influence'.[30] This view is taken also by Professor von Falke, who, when referring in the second edition of his great work to our Lou-lan stuffs, expresses the belief that the style of Chinese figured silks, such as those of L.C. 07. a; iii. 011 (Pl. XXXIV), reproduced by him from Mr. Andrews' drawings, could not make an impression in the West as long as classical art feeling survived.[31]

Lattice diaper in textile designs.

Professor Strzygowski had laid special stress on the probability that the preference which the designers of early Byzantine and 'Coptic' fabrics show for the lattice diaper made up of lozenges, a motif also found decoratively used in Hellenistic sculpture, would be found traceable to the influence of Chinese figured silks.[32] The grave-pits of L.C. have actually furnished those examples of early Chinese silks with this lozenge 'all-over' pattern for which Professor Strzygowski was looking. Yet no definite conclusion appears to me at present possible on this point either, since Professor von Falke shows that the frequent use of the lozenge scheme of design on Western textiles is attested by representations in Greek vase paintings as early as the sixth to the fourth century B.C.[33]

[26] See J. Strzygowski, *Seidenstoffe aus Aegypten im Kaiser Friedrich-Museum*, with the pregnant sub-title 'Wechselwirkungen zwischen China, Persien und Syrien in spätantiker Zeit', in *Jahrbuch der K. Preussischen Kunstsammlungen*, xxiv (1903). pp. 147 sqq. Cf. particularly pp. 173 sqq.

[27] See Pliny, *Historia naturalis*, vi. 54; xi. 76; cf. also Hirth, *China and the Roman Orient*, p. 258. The same process is alluded to in poetic fashion by Lucan in his *Pharsalia*, x. 141–3; see Coedès, *Textes relatifs à l'Extrême Orient*, p. 18 (where the translation of *filo* by 'lin' requires modification as the reference to a 'textile of the Seres', i.e. silk, is quite certain).

[28] *Amores*, I. xiv. 6. The reading *colorata* accepted by von Falke, *Seidenweberei*^{2}, p. 2, is impossible on metrical grounds.

[29] I take this reference from Dalton, *Byzantine Art and Archaeology*, p. 584.

[30] See *loc. cit.*, p. 584.

[31] Cf. von Falke, *Seidenweberei*^{2}, p. 14.

[32] See Strzygowski, in *Jahrbuch der K. Preuss. Kunstsammlungen*, xxiv. pp. 174 sqq. For the lozenge-diaper ornamentation of columns, see now also Strzygowski-Berchem, *Amida*, Fig. 78.

[33] Cf. von Falke, *Seidenweberei*^{2}, p. 1, with Figs. 3, 4, 5, 6, 8.

However this may be, the question as to any direct influence exercised by Chinese silks on the textile designs of regions enjoying Hellenistic civilization can scarcely be safely argued so long as those regions have furnished no remains of figured silk fabrics belonging to the first century before and the first three centuries after Christ. For this was just the period when the import of silk stuffs from China is likely to have flourished most, while the weaving of silk textiles in Syria and elsewhere in the Hellenized parts of the Near East can scarcely have as yet attained its full growth.

Persian empire the channel for silk trade.

The aspects which the question presents as regards Īrān are somewhat different. We know that ever since the Central-Asian route for Chinese export was opened, the Persian empire, both under Parthian and Sasanian rule, was the sole channel for the transmission of silk goods, in whatever form, from Central Asia westwards. This Persian monopoly of the silk trade continued right down to the middle of the sixth century, when sericulture was first introduced into Greece under Justinian.[34] Apparently the earliest reliable record of the manufacture of silk fabrics in Īrān is furnished by a tradition of which the Arabic historian Masūdī tells us. It connects the prosperity of the silk industry under Sasanian rule with the settlement in the Persis of Hellenistic weavers from Syria, forcibly carried out by Shāhpūr II about the middle of the fourth century.[35]

Sasanian textile style.

Surviving remains of figured silks acquaint us with the peculiar 'Sasanian' textile style as it flourished in the sixth to eighth centuries A.D. The widespread influence it exercised westwards is traceable in silk fabrics from Antinoë and from Byzantine workshops, dating from the sixth century onwards. This 'Sasanian' style is clearly distinguished from that of our L.C. figured silks by a series of characteristic features of its own. Among them it may suffice here to mention: the preference shown for the representation of hunting scenes; the practice of framing these, as well as animal motifs, whether single or in pairs, within medallion borders decorated with discs; and the rigid treatment of all figures.

Designs linking 'Sasanian' and Chinese silks.

Yet there are not wanting in these 'Sasanian' silks certain peculiarities which might suggest derivation from features already to be found in some of our L.C. fabrics. Thus the favourite scheme in Sasanian silks of pairs of confronting animals is, as we have seen, frequent also in the L.C. textiles.[36] That the use made of it by the designers of these early Chinese silks is not necessarily due to the technical facilities offered by the 'turn-over' device is proved by its occurring also in sculptural work of Han times. The tree which in the 'Sasanian' pieces usually separates the pairs of animals or hunters, and which learned convention interprets as an emblem of 'the tree of life', might well be foreshadowed by the trees found associated with the animal figures in L.C. ii. 01 (Pl. XXXVI, XL), L.C. 07. b (Pl. XL) and T. XXII. c. 001. a, as well as in a Han tomb sculpture.[37] It deserves to be noted that this tree, gracefully stylized into a form resembling its free treatment in certain 'Sasanian' designs, is found also in the fine figured silk Ch. 00118, from the hoard of the 'Thousand Buddhas'. This piece again is closely related in technique of weave and in design to a silk fragment, T. XV. a. iii. 0010, discovered on the Tun-huang Limes, which may safely be assigned on documentary evidence to the first century B.C.[38]

Chinese influence on later Persian art.

The close examination of more 'Sasanian' textile patterns than I can carry out at present may well reveal other points of contact in details. But more important for the general question is the essential fact that Chinese art in successive later periods is proved to have exerted a very marked influence not merely on the painting and ceramics of Persia, but also on its textile crafts. The fine brocades produced in Persia from the fourteenth to the sixteenth century strikingly

[34] See Strzygowski, in *Jahrbuch der K. Preuss. Kunstsammlungen*, xxiv. p. 149; von Falke, *Seidenweberei*[2], p. 3.
[35] Cf. Strzygowski, *ibid.*, p. 171.
[36] See above, p. 238.
[37] See Andrews, *Chin. Fig. Silks*, Fig. 16.
[38] See *Serindia*, ii. pp. 911 sq., 963; iv. Pl. CXI.

illustrate this influence,[39] and traces of inspiration drawn from later Far Eastern designs are recognizable also in the Persian figured velvets of the seventeenth century.[40]

China's relations with Īrān under Parthians.

Īrān can be shown to have always readily responded to 'artistic penetration' of this kind from the Far East, whenever political conditions favoured it, as under Mongol domination; or when prosperity and flourishing maritime trade facilitated imports, as under the Sefevide dynasty. The expansion of China's political power and commerce beyond the Imaos and the Pāmīrs which occurred in Han times must have opened the way for similar influences, as may be inferred from the account given by the Han Annals of the relations established by the Imperial Court with Parthia and the smaller states of Eastern Īrān.[41] But unfortunately only the scantiest remains of Īrānian arts and crafts of the Parthian period have come down to us, and specimens of Persian textile work, as practised during the centuries when China's silk export was most active, are completely wanting. Hence we can at present only conjecture the part played by the latter in stimulating the development of that style which we see displayed, in stiff maturity, by our late 'Sasanian' textiles.

Section VI.—MISCELLANEOUS SEPULCHRAL DEPOSITS AND DESCRIPTIVE LIST OF ANTIQUES FROM L.C.

Objects of personal use deposited in burials.

After our examination of the textile relics recovered from the grave-pits of L.C., it still remains for us to pass in rapid review the miscellaneous objects which had found their way into the sepulchral deposits there collected. These miscellaneous articles, like the fabrics, correspond very closely in character with those usually found in the undisturbed Chinese burials explored by me elsewhere. Among small objects of personal use deposited with their dead owners, we may note first two well-preserved bronze mirrors, L.C. 013, 021 (Pl. XXIV), besides a number of fragments, L.C. 017–18, 043–4. L.C. 013 is of special interest as it shows in the low-relief ornamentation of the reverse a band containing eight different Chinese lapidary characters separated by simple decorative motifs. In L.C. 021, also showing low-relief ornaments on the back, both this and the flat front appear to have been silvered. On the fragment L.C. 020 (Pl. XXIV) traces of gilding remain. The original use of the embossed gold-foil disc L.C. 022 (Pl. XXIV) is uncertain. Other small objects in bronze are the buckle, L.C. 041 (Pl. XXIII); the hook L.C. 042, similar to one found on the Tun-huang Limes, and the buttons L.C. 014, 023. Among toilet articles we have, besides the mirrors, the well-made wooden combs, L.C. x. 012–13 (Pl. XXI), with fine teeth.

Remains of personal possessions are probably represented also by the ornamented wooden lid of a box, L.C. iii. 03 (Pl. XXIX); the fragments of a lacquered wooden box, L.C. iii. 07, and those of other small receptacles in bent cane, L.C. x. 011, 023 (Pl. XXI, XXVIII). The well-preserved melon-shaped basket of fine grass, L.C. 05 (Pl. XXVI), originally varnished or perhaps lacquered, may, judging from similar baskets found at L.E.,[1] be safely assumed to be a local product and to have held food deposited with the dead. The matting of hemp string, L.C. ii. 010, is also probably of local origin, but resembles in weave the piece T. xiv. 004. b found on the Tun-huang Limes.[2] The four-legged wooden food-trays, L.C. x. 015–16 (Pl. XXVII), were, no doubt, meant for food offerings as usually found by me in intact Chinese tombs; the numerous knife cuts, however, show that these trays had previously been utilized by the living. Of other similar food-trays there survive only the legs L.C. i. 016; iv. 06–8; x. 05–8 (Pl. XXIX), 024–6, usually beast-shaped. Whether the jug, L.C. 012 (Pl. XXIX), the goblet, L.C. iv. 09 (Pl. XXIX), and the ladle, L.C. x. 027 (Pl. XXI),

[39] See von Falke, *Seidenweberei*², p. 33, Figs. 285–92, 295.

[40] Cf. *ibid.*, Figs. 524–6 with Figs. 273–4.

[41] Cf. Wylie, 'Notes on the Western Regions', *J. Anthrop. Inst.*, x. pp. 39 sqq.; Chavannes, *T'oung-pao*, 1907, pp. 177 sq.

[1] See below, p. 265.

[2] See *Serindia*, iv. Pl. XLVIII.

all in wood, were ever in actual use or only made for sepulchral deposit, it is impossible to say. In the case of the wooden spatula, L.C. vii. 03, no purpose of the latter kind suggests itself.

The fragments of wooden arrow-shafts, L.C. iii. 08; v. 031–4 (Pl. XXVI); x. 018–22, and the fragment of wood, L.C. ii. 012 (Pl. XXVI), suggesting a piece from a scabbard, may have belonged to actual arms. But the wooden handle of a dagger, L.C. x. 09 (Pl. XXI), was clearly not made for use, but intended only to serve as a sepulchral deposit. On the other hand, the wooden buckles for harness, L.C. i. 015; iv. 02 (Pl. XXIX); the leather ornament for a horse, L.C. iv. 04; the leather object, L.C. x. 010 (Pl. XXVII), which might have belonged to some saddle trappings; the lash of a whip, L.C. iii. 05 (Pl. XXVI), and the plaited leather thongs, L.C. iv. 03—all these look as if they had served their purpose for the living before being left with the dead to meet their needs in another life.

Finally I may mention here that the finds in the grave-pits of L.C. also included two well-preserved coins of the *Wu-chu* type, perhaps intended to symbolize financial provision for the dead.

DESCRIPTIVE LIST OF OBJECTS EXCAVATED FROM, OR FOUND NEAR, GRAVE-PITS OF L.C. CEMETERY

L.C. 01. Frs. of figured silk lined with plain silk. Pattern is composed of small rectangles about ¼″ × 3/16″ arranged in lozenge order, with a centre in each lozenge composed of four similar rectangles placed at the corners of a fifth. Front and back formed by weft arranged in bands of colour in the following order: bright blue, copper, myrtle green, copper. Pattern is in dull gold colour on one side and in the respective colours of bands, on the other warp-rib weave.

Lining: plain, thin, greenish (prob. faded blue) silk, finely woven. The whole very perished and discoloured, although parts are fresh looking. Probably from a kind of coat. Best preserved fr. 1′ 4″ × 7″. Pl. XXXV.

L.C. 02. Tattered fr. of costume, apparently a body-band. Outer fabric, figured silk; lining green, finely woven plain silk. Between the two a stiffening of coarse evenly woven linen or cotton plain cloth, all sewn together at top and bottom edges, and ends joined to form a tube-like garment. Tuft of hair present.

The pattern is so involved and details so stylized as to be almost impossible of description. The largest element is a band about ¼ inch wide issuing from an irregular oblong blue and buff root-like form, with circular disc at top, and branching shoulders; from these spring two pairs of thin buff stems—one pair to R. and the other to L. That to R. proper has one curved outwards, terminating in a blue flower in profile which resembles a hare-bell; the other is short and has no flower.

The opposite pair, curved downward; one short, other bearing similar flower, part green and part buff. Band issuing from disc proceeds upwards and then turns into angular lozenge-shape spiral having one and a half turns, the enclosed central space containing green and buff flower, similar to others but distorted to fill lozenge shape. The first length of spiral band is decorated with herring-bone pattern in buff. The remaining five are blue with nebuly turn-overs, like Chinese cloud, in buff and green. Similar turn-overs on root. This whole motif is repeated across fabric at intervals of 3/16″ at their nearest points.

Second element starts from three-lobed green and buff 'nest' between two of the discs. A downward curved blue stem sweeps across root of first element and returns upward, bearing a complex form which suggests rampant lion-like beast with elliptical blue and buff head, green and buff body, and blue rump. Six curved spinous off-shoots in three pairs, suggesting legs, radiate forward from the lower part of body; the two hinder, blue; middle pair, buff or green; and the fore pair buff. A short green or buff band meanders from root of first element to neck of 'lion'. From below nest issues an **S**-shaped stem which throws out a curved blue seed-pod, burst to exhibit seeds (?).

Between upper and lower repeats of the 'lion' is a group of three flowers, two blue and one green, on curved stalks united below in a common stem issuing from neck of dragon.

The last element, set between the adjacent rows of the first and second, is a thin blue green and buff dragon (?) facing to L. and having perhaps rudimentary buff wings. The 'off' fore (blue) and hind (green and buff) legs with three claws on each are well defined. The near fore (blue) extends forward from the lumbar region of the back and is nebuly. Near hind (green) extends upward from rump. From shoulders the long nebuly buff neck curves back and down, becoming an angular scroll of one and a quarter turns, thickened at head. A chain appears to extend from hind to fore quarters.

All drawing, excepting that of flowers, is fantastic, and it is quite easy to fit other interpretations to various parts of the design.

Colour of ground, copper-brown, all outlines buff. Balance of colour extremely good. Warp-rib weave. Width 11″; circumference *c.* 30″; width of fabric 18″. Pl. XXXV, XLI.

L.C. 03. Fr. of figured silk. Two pieces of same pattern, joined; one retaining selvedge which is folded under in joining to the cut and doubled edge of the other.

Pattern: on a bronze-brown ground a thin, buff, circular scroll forms stem, curving R. to L. and springing from

the petiole of a long downward curved sagittate leaf form. Point of 'leaf' is divided longitudinally into three slender tapering prongs which continue the direction of scroll.

The two edges of the 'leaf', after spreading, roll inwards at its base, forming a volute on either side of petiole. A third volute lies at base of prongs and is continuation upward of the outer prong. Volutes are open, showing ground between their scrolls, thus forming a counterchange.

This pronged 'leaf' suggests the root from which main stem springs. From upper side of each of the pair of volutes is thin straight buff line joining stem. Stem completes about ⅞ of circle finishing in small inward scroll which ends in lily-type flower. In this two outward-curling bright green petals hold between them a buff centre.

Just above root, stem throws downward and backward small simple, thin, buff scroll. Farther round, at about 'XI o'clock', a lily with well-curled buff sepals and green centre springs outward and upward. Immediately below, a five-scalloped green leaf or wing, reminiscent of a cloud, sharply pointed at each end, clings to stem until it turns into end volute.

Under inner, concave side of root is another, subsidiary root consisting of three prongs and one volute, outer prong forming volute by its upward prolongation. From upper curve of volute and normal to it springs thin buff stem, which follows, approximately, curve of larger and enclosing stem, but forms volute of three revolutions.

On top of this stem and below enclosing stem stands bird of quasi-goose type to R. regardant or preening its wings; green, excepting legs, neck and head which are buff. In front of goose a green and buff lily grows backward and upward; two more lilies spring from about 'X o'clock' and 'VI o'clock', respectively, and from base of last issues small buff scroll. Last lily has no centre and resembles two thin, outward-curving crossed leaves.

The whole of pattern occupies a rectangular space and repeats simply, vertically and horizontally. Prongs of roots of one unit rest on outer stem of the one below; but laterally there is narrow dividing space. In spandril between repeats is solitary Chinese character. For other examples of pronged root, cf. L.C. 07. a, L.C. ii. 03 (Pl. XXXIV), and a probable variation, L.C. 02 (Pl. XXXV, XLI). For goose, L.C. 031. c.

Selvedge is ornamented with long hexagonal buff panels of which the adjoining triangular ends are alternately bronze-brown and buff, the background of buff pair being bronze-brown. Green portions of pattern are outlined buff. Green is introduced in bands of warp which do not always occur quite accurately.

Colours much faded. Warp-rib weave. Long edges, at right angles to seam, originally folded back to form hem, and sewn to doubled edges of fine buff corded silk lining. R. and L. edges torn; top and bottom cut and split. Fabric generally split and worn. Probably part of body-band. Gr. M. 12" × 11". Pl. XXXV, XXXIX.

L.C. 04. a. Fr. of leather; white, with hair in places, lined with buff felt, sewn together at curved edge. Remains of fine silk attached to felt, and strands of vegetable fibre. Leather sewn with vegetable fibre thread. Perished. 6" × 5½".

L.C. 04. b. Fr. of felt similar to lining of L.C. 04. a, but dark brown. 3½" × 3½".

L.C. 04. c. Misc. frs. of cotton fabric, plain weave. No pattern; various thicknesses. Discoloured to brown; very dirty. Gr. M. c. 2' × 2'.

L.C. 05. Grass basket, shaped like melon with one end cut off to form mouth. The 'stakes' or warp are of bamboo (?) about 1/16" thick and laid as close together as possible. The bottom being convex, additional stakes are added to retain close texture of sides, and some of these are held at the upsetting by a round of 'waling stroke'. Others are introduced above this.

A band of 'waling stroke' runs round about ½" below mouth, and on opposite sides. On this band are two loops to which is attached a cord composed of twined strands of dark goats' hair and hemp, and forming handle (now broken).

Whole basket worked in very close 'paring stroke'; material apparently a fine grass. Outside and inside have been entirely varnished (or lacquered). Varnish much perished. Inside is a small piece of bone (metatarsal ?), and the sloughs of some small insects. Well preserved. H. 5¾", gr. diam. 3½". Pl. XXVI.

L.C. 06. a. Three frs. Cloth similar to L.C. i. 01. Fine crimson. Very ragged. Gr. length 9½".

L.C. 06. b. Frs. of felt, yellow, very ragged and insect-eaten. Gr. M. 8½".

L.C. 06. c. Fr. of cotton (?) jean. Very strong and thick; finely and evenly woven. Light buff discoloured. 6" × 4½".

L.C. 06. d. Fr. of cotton (?) jean; thin texture, pink, finely woven, ragged. 6" × 4".

L.C. 06. e. Misc. frs. of woollen fabrics. One (buff), a closely woven canvas, and two (discoloured crimson) more loosely woven. Ragged but strong. Gr. fr. 4" × 1¼".

L.C. 06. f. Fr. of leather, white kid, tanned; has prob. contained pink powder. 2½" × 2".

L.C. 07. a. Figured silk, forming portion of garment, similar to L.C. 02 but smaller. Pattern extends full width of material and repeats vertically. It consists of grotesque beasts pursuing one another through vermicular cloud scrolls.

There are six different beasts, placed in an approximately straight line in various feline poses of attack and defence. Between first and second beasts from R. is standing goose, placed at right angles to general direction of pattern. The 'pronged root' (cf. L.C. 03, Pl. XXXV, XXXIX) occurs three times. Over each animal is Chin. char. A second bird is placed between the two last beasts to L. and is also at right angles to rest of pattern.

Colours used are yellow-brown, two tones of buff and rich blue. Ground, crimson-brown. Animals are buff, mottled or otherwise marked with one or more of the other

colours. Clouds outlined light buff. Blue introduced in bands of warp. The two selvedges are worked in vandyke pattern. Warp-rib weave.

Patched into one edge is piece of silk of different pattern (see L.C. 07. b). Garment lined with finely woven plain green silk (detached); brittle and ragged. Width 7¼". Circumference *c.* 24". Original width of figured silk, between selvedges, 18". Colour good. Pl. XXXIV.

L.C. 07. b. Fr. of figured silk, patched into L.C. 07. a. Pattern shows in centre a pair of confronting griffins between enclosing scrolls. Heads of griffins, reverted. Each holds up one fore-paw. Between heads, frs. of leaf orn. suggesting 'tree'. Enclosing scrolls turn into volutes below griffins, and contain stylized grinning beast (?).

At lower part of fr. an arcaded effect of two large arches with a pair of small ones between is produced by weaver's distortion of cloud scrolls. In large arches (of which one is present) is the semblance of two winged sheep-like animals kneeling on either side of a 'tree' or altar. At upper part of fr. are two confronting birds with outstretched necks, and above these, parts of cloud scroll. Colour, light blue, green and two tones of buff on crimson brown ground. Warp-rib weave. 8½" × 3½". Pl. XL.

L.C. 08. Fr. of figured silk, with pattern of Chinese cloud scroll, suggestive of 'tree-coral' formation, meandering across fabric. In the bends are alternately: a flying duck with neck stretched down and head reverted, and a winged lion with massive open jaws and big teeth, striding to L., in yellow and green outlined red.

Tree in yellow, red and green, outlined red and pale yellow. Chinese characters are dotted about, repeating in the length, and changing in the width. Ground dark blue. One edge has selvedge of yellow and bronze; the other edges are torn or cut. Warp-rib weave; colours brilliant and well preserved. 13" × 6". Pl. XXXIV.

L.C. 09. a. Fr. of plain silk fabric (taken from bundle of rags, L.C. 09. b), rich red, with border of plain buff silk sewn to it. Four unequal-sized square beads of some very hard metallic substance are drilled with small hole and stitched to fabric. Beads resemble pyrites. Ragged and rotten. 10" × 1' 6".

L.C. 09. b. Bundle of frs. of plain silk fabrics, mostly white and buff. Very ragged and rotten. Best-preserved fr. 1' 6" × (selvedge to selvedge) 1' 6½".

L.C. 010. Fr. of woollen pile carpet, in two pieces. Similar structure to L.C. ii. 09. b. Colours crimson, pink, green and brown. A band of brown 'latch-hooks' on yellow-green ground. Very rotten; colours good. Gr. fr. 10½" × (gr. width) 2". Pl. XLIV.

L.C. 011. Fr. of leather, thin, white (kid?). Brittle. 3¾" × 1½".

L.C. 012. Wooden jug with small ring-handle; carved in one piece, and not lathe-turned. Body ovoid, cut flat at bottom; upper end drawing in somewhat to short neck, and expanding very slightly to plain rim, flattened on top for thumb, like ordinary teacup handle.

Outside coated with red paint, much scratched. Sand-encrusted but unbroken. H. 4½", gr. diam. of body 3¼", diam. of mouth 2¾", of bottom 2". Pl. XXIX.

L.C. 013. Circular bronze mirror; with hemispherical boss pierced for cord, in centre of back, rising from plain disc in very low relief and of slightly larger diam. Surrounding disc is ring of cable pattern and then plain raised ring.

Between this and raised outer border of mirror (plain and 7/16" wide) is a band bordered by two rings of cable pattern, and showing in relief eight different Chin. chars. (for reading, cf. Appendix *I*) separated alternately by a spiral (cloud) and a lozenge. The spirals spring from the outer ring of cable pattern.

Face slightly convex. Good condition. Diam. 3½", thickness at edge fully ⅛". Pl. XXIV.

L.C. 014. Bronze button with large loop shank at back. Front, a hemisphere (lotus ?) with hole in centre, and plain flat border around. Good condition. For another of same type, see L.A. 033 (Pl. XXIII). Diam. of head 7/16", depth over all ⅜".

L.C. 015. Bronze ring, round in section. Oxydized but otherwise perfect. Diam. 1⅛", diam. of section 3/16". Pl. XXIV.

L.C. 016. Nail-like iron object, flattened, and slightly spreading at one end. Corroded. Length 2⅝", width *c.* ¼".

L.C. 017-20. Misc. bronze frs. *017-18.* Small frs. of mirrors. On *018* part of band of linear orn. and prob. Chin. chars. Each ⅝" × ⅝". *019.* Fr. of hollow rim of vessel. 1⅛" × ½" × 5/16".

020. Embossed circular plate, gilded. Pattern, rounded raised edge, and raised ring round depressed centre. Two small bosses opposite each other on face of outer raised edge may be remains of attachments. Diam. 5/16", section 3/16". Pl. XXVI.

L.C. 021. Circular bronze mirror. Hemispherical boss as in L.C. 013, pierced for cord, in centre of back. Raised outer border, ⅜" wide, chamfered on outer edge and orn. on sloping inner edge with line of vandyke orn.

Within: band of simple rayed orn.; then plain band between thin raised rings; then wider band orn. in relief with alternate plain oblongs (in outline) and circles (in mass),—eight in all.

Apparently silvered back and front; now mottled with corrosion. Diam. 2 13/16", gr. thickness ⅛". Pl. XXIV.

L.C. 022. Embossed gold-foil disc, on iron base. Pattern, incised ring. Iron badly corroded. Gold, ¾" diam. Iron, diam. 1", thickness 5/16". Pl. XXIV.

L.C. 023. Fr. of bronze button or stud, with loop shank, and domed head which has nearly all disappeared. H. ½".

L.C. 024. Flake of stone, pale green, translucent, prob. jade. Surface eroded. Edges thin. 1 3/16" × ⅝" × ¼".

L.C. 025-7. Misc. bronze frs. *025.* Fr. of edge of mirror, plain. ⅞" × ⅜" × ⅛". *026.* Fr. of field of mirror showing band of ray orn., plain raised band, &c. ⅞" × ⅝" ×

$\frac{1}{4}$". 027. Double hook, formed by piece of flat bronze wire doubled, with ends turned upward and sharpened. A loop is formed at doubled end for suspension. Cf. L.A. 019. Length 1".

L.C. 028. Bone object, hollow, gourd-shaped; with hole drilled through each side near mouth and opposite each other, prob. for suspending cord. Well preserved. H. $\frac{3}{4}$", gr. diam. of body $\frac{3}{4}$", diam. of mouth $\frac{1}{4}$", thickness of wall $\frac{1}{16}$". Pl. XXIV.

L.C. 029. Four bronze frs., plain. Gr. M. $\frac{1}{2}$".

L.C. 030. Fr. of plain silk fabric, green; finely woven, but torn. 1' 3" × 5".

L.C. 031. a. Four frs. of figured silk. Similar to L.C. i. 09. Warp-rib. Ragged and perished. Gr. M. $8\frac{3}{4}$" × $3\frac{1}{2}$".

L.C. 031. b. Fr. of figured silk. Pattern present is in five rows. First row: in outline, elongated octagons with the three sides at one end omitted and a short line joining each long side to corresponding sides of adjacent octagon. Two lines within octagon parallel to long sides. Connected with upper end a regular hexagon within which two dots. Six dots between hexagons.

Second and fourth rows: long rectangular billets, solid. Third row: elongated octagons in outline with two inner lines as in first row. Fifth row: angular meander formed of half hexagons alternately reversed, and a pair of dots in each hollow.

Ground rich blue; pattern rich yellow. Warp-rib weave. Ragged and discoloured in places. For similar fr., see L.C. ii. 05. a and *Ser.* iv. Pl. LV, T. xv. a. 002. a. 4" × 4". Pl. XXXV, XLII.

L.C. 031. c. Fr. of figured silk. Cloud scrolls of 'tree-coral' type. To R. a sprite sitting on node with feet resting on another. Puck-like face, cap with long tail hanging to shoulder. Calyx-like cape and kilt. To L., a pair of standing birds, addorsed, heads reverted gazing at each other.

Pattern is a turn-over, which gives bi-symmetrical forms to cloud scrolls and results in Rococo forms. Ground blue, pattern crimson, green and two tones of buff. Warp-rib weave. Well preserved. 5" × $2\frac{1}{4}$". Pl. XXXIV, XXXIX.

L.C. 032. Strip of embroidered silk canvas. Silk pale buff. Embroidery in silk, a continuous lozenge pattern; each lozenge formed of two concentric lines of blue and pale brown, enclosing different patterns of which small frs. only remain. Colour scheme rings the changes on blue and pale brown without observing any regular sequence. Much worn and very fragile. 10" × $1\frac{1}{4}$". Pl. XLII.

L.C. 033. Embroidered comb-case, of crimson woollen repp, lined, bound, and embroidered with silk. In shape a long ellipse, doubled (but whole of one edge perished). Pocket inside in each half, one containing comb of hard wood, the other retaining mould of comb now lost. Pockets made of strips of plain and damask silk; diced pattern, alternate squares being, respectively, ribbed and herring-bone twill. Lined with fine hemp (?) canvas; crimson repp outer cover lined with felt; edge of whole bound with plain crimson silk.

Cover cut from larger piece of embroidery, showing orig. corner and two edges. Along the latter is embroidered band of 'latch-hook' pattern much scrolled; within are scrolls of naturalistic grape-vine with fruit and leaves.

Embroidery worked in chain-stitch, in dark blue (?), green, and yellow; but, like whole of rest of case, blackened with use and age.

Comb, well made, of dark-brown wood, with high arched back; apparently unused, but splinter split off one edge. Sticking to one side of case was knotted fr. of plain silk, containing some substance which has hardened the adjacent folds and turned them ash-grey.

With case were also two frs. of figured silk of same type as L.C. 07. a, one with bronze ground, the other with rich blue. Case (doubled), length $4\frac{1}{4}$", width $3\frac{1}{4}$"; comb, H. $2\frac{13}{16}$", width $2\frac{1}{4}$", frs. of figured silk $2\frac{1}{4}$" × $1\frac{1}{4}$" and $1\frac{3}{4}$" sq. Pl. XLV.

L.C. 034. Wooden stick, round, painted red; with black rings round ends. Very brittle. Length $2\frac{7}{16}$", diam. $\frac{1}{4}$".

L.C. 035. Fr. of cotton (?) jean, like L.C. 06. c. White. Ragged but tough; excellently woven. 7" × $3\frac{1}{4}$".

L.C. 036. Fr. of cotton fabric; plain weave, buff, with piece of white silk attached. Ragged but tough. 6" × 3".

L.C. 037. Fr. of woollen fabric, dark brown (discoloured). Weave fine twill with flannel-like inner surface; covered with corroded brown silk to which a piece of felt is attached. 4" × 3".

L.C. 038. Three woollen fabric frs., red. One plain weave, two 'serge' weave; all well woven and well preserved. Gr. fr. $7\frac{1}{2}$" × 2".

L.C. 039. Misc. fabric frs.; two of plain fine buff silk; one of wool felt. Brittle. $4\frac{1}{2}$" × 4"; 4" × 3".

L.C. 041. Fr. of bronze buckle; attachment plate, root of tongue, and beginning of arms of loop. Attachment plate pierced with oblong opening; then two small circular openings, round the bar between which is curled root of tongue. Length $\frac{7}{8}$", gr. width $\frac{1}{2}$". Pl. XXIII.

L.C. 042. Bronze hook or ring handle of flattened wire. Cf. *Ser.* iv. Pl. LIV, T.W. 007. Length $1\frac{3}{8}$", diam. of ring $\frac{7}{8}$".

L.C. 043–4. Two bronze frs., corroded, from mirrors (?). Gr. fr. $1\frac{1}{4}$" × $1\frac{3}{16}$", gr. thickness $\frac{3}{16}$".

L.C. i. 01. Fr. of woollen 'box-cloth'; rich crimson with buff warp, woven in a fine cord texture. Sewn down centre is a wide tuck, on which is a section woven in dark blue. Velvety to the touch, and apparently teased up in parts to a surface somewhat like box-cloth. For larger fr., see L.C. ii. 016. Much torn and perished. Colour good. 9" × $10\frac{1}{2}$".

L.C. i. 02. a, b. Two frs. of cotton garment; buff, plain weave, padded with loosely felted wool. On rev. remains of lining of fine buff silk. Much perished and

ragged. For other frs., see L.C. i. 06, 07. (*a*) 1′ 2″ × 6½″; (*b*) 1′ 6″ × 1′ 6″.

L.C. i. 03. Fr. of felt: yellow, laminated approximating to soft paper in appearance. Much perished. 6″ × 2½″.

L.C. i. 04. Fr. of woollen fabric; red, coarse plain weave, as L.C. 038. Sand-encrusted. 8″ × *c.* 1″.

L.C. i. 05. Misc. frs. of plain silk, generally fine texture, buff crimson, and blue, much faded. Remains of sewing on many. Much perished. Gr. fr. 2′ 6″ × *c.* 2″.

L.C. i. 06. Portion of padded cotton garment, in several frs. Strong plain cotton cloth, buff, padded with layer of loose felt and lined with plain light buff silk. Horizontal and vertical bands of figured silk, applied to front.

Pattern: Chinese 'vermicular' cloud scroll, stepped and slightly angular in treatment, with grotesque beasts and birds; generally much faded, only blue and buff and traces of green remaining.

At R. a winged dog-like beast with open jaws springs downwards to L. In front of him a plump partridge-like bird, standing, at right angles to general line of beasts. To L. a striding leopard, mottled and marked with three roundels on body, with Chinese lapidary char. over his back and another below forefeet.

Next distinguishable feature is the pronged element with Chinese char. to R.; to L. a monster resembling in pose the third form R. in L.C. 07. a, and pronged element to L.; two Chinese chars. are respectively R. and L. of monster. Beyond this nothing is clearly distinguishable but angular scroll and the pronged element.

The above description of pattern is compiled from several frs. Cf. also L.C. 07 (Pl. XXXIV); iii. 04. c, 017. b, 018 (Pl. XLII).

There is evidence from another fr. of the colouring being rich copper ground, buffs, blue, and dark green. Fr. of burnt bone found with garment. Very ragged and perished. Gr. fr. 1′ 8″ × 1′ 3″. Pl. XLII.

L.C. i. 07, 07. a. Frs. of padded garment, similar to L.C. i. 06, of which it appears to be a part. The only fr. of recognizable pattern has the partridge as in L.C. i. 06. Very faded and garment rotten. *c.* 2′ × 9″. Pl. XLII.

L.C. i. 08. Fr. of woollen pile carpet, rather coarse, woven in red, brown, and tones of dull yellow. Only part of pattern recognizable is two bands of 'latch-hook', 2½″ apart, with hooks turned reverse ways. Length of pile about ½″, and six shoots of weft between lines of pile. Faded. 1′ × 1′ 2″. Pl. LXXXVII.

L.C. i. 09. Three frs. of figured silk. Pattern: tree-coral cloud scroll with occasional naturalistic floral outgrowths. To R. near selvedge, winged leopard in pose of Mycenaean lions, head reverted to R., crimson body spotted with yellow roundels. Thin upward curled tongue issues from open jaws (or this may be a continuation of tail of next beast). Near jaws a Chinese lapidary char.

Level with head of leopard, a short winged sheep, standing to L., with a single horn, upright on its head, or it may be one of the ears. Body, part green and part yellow according to change of warp, outlined crimson, hoofs crimson. Facing sheep but on level of leopard, large headed, horned, and winged monster with short pendent tail, near which is Chinese lapidary char. A variation of 'horseman' pattern, L.C. iii. 012 (Pl. XXXIV), *q. v.*

Colour perished, but probably yellow, with crimson roundel on flank. From scroll behind this beast springs thin stalk bearing two leaves and a flower. Remainder of pattern missing.

Ground blue, with scrolls of yellow, crimson and green. Remains of plain buff silk lining. Faded, perished and ragged. For well-preserved colour, see L.C. iii. 011 (Pl. XXXIV). Gr. fr. *c.* 8″ × 8″.

L.C. i. 010. Fr. of figured silk in two pieces. Lozenge all-over pattern similar to L.C. v. 027. a (Pl. XLIII). Well preserved. 4¾″ × 1¾″.

L.C. i. 011. Fr. of cotton damask: pink, close-woven, three pieces sewn together. Ground woven in small rib; pattern in large broken twill giving effect of chequer.

Design: lozenges repeating in rows, each row separated from the next horizontally by a chevron line of chequer-work. Chequer-weave of lozenges themselves is broken by four small roundels, woven in small rib-like ground, and disposed diamond-wise within field of lozenge. For similar damask, see L.C. v. 02. b.

Torn, but well preserved. 9½″ × 6½″, lozenge 2⅝″ × 1$\frac{7}{16}$″. Pl. XLII, LXXXVII.

L.C. i. 012. Fr. of woollen (?) fabric; red, plain weave. Ragged but good colour and texture. 5″ × 4¾″.

L.C. i. 013. Fr. of plain silk, buff, fine texture; ragged. 3¾″ × 2¾″.

L.C. i. 014. Wooden stick; trimmed round, expanding slightly to one end, which is then cut to very flat point. Other end cut to similar point, groove cut round stick ¾″ from it, and hole (¼″ diam.) drilled through just within groove. Length 1′ 3¾″, diam. ¾″. Pl. XXIX.

L.C. i. 015. Fr. of wooden buckle from harness. Flat piece of wood, roughly oblong, but one end broken off (at beginning of slit). Other end expands slightly into curved end, finishing in ogee point. Long slit transversely through this end, forming **D**. Surface orn. with rows of small incised circles with dot centres. For complete example, see L.C. iv. 02 (Pl. XXIX). L. 3½″, gr. width 2½″, thickness $\frac{5}{16}$″.

L.C. i. 016. Carved wooden leg of food-tray, like L.C. iv. 07–8. Beast-shape; no detail; unpainted. Tenon at top, broken. H. 4¾″, width 1¾″, thickness ⅞″.

L.C. ii. 01. Fr. of figured silk. Rich dark yellow-brown ground.

Pattern: in very dark bronze green; to R. T'ao-t'ieh monster, very stylized, with bandy legs and straight radiating spines issuing from shoulders. Open grinning jaws with triangular, pointed teeth; large round eyes, circular ears, and a row of triangles for hair or mane. Style recalls Polynesian work.

To L. of monster a formal tree with roots represented by two symmetrical inward turned scrolls formed by bifurcated base of trunk; foliage, by row of five elongated pentagons, point downwards. From between these pentagons a back row is visible. Spines are placed along top of tree.

To L. a running, winged lion proceeding to L., with open jaws and upraised lashing tail; markings on body, ground colour.

To L., tree with roots similar to first; trunk divided into three rising, undulating stems, each upholding a flower or fruit from which rise three spines. To L., hind part of slender dragon (?) with curled bifurcated tail, in silhouette, turning head to regard lion. Above tail of dragon, three flowers supported on wavy stem.

Height of pattern about ⅞". Repeat, in rows as close as possible, each item coming vertically above the similar one below. Style of weave and treatment recalls *Ser.* iv. Pl. CXVIII, T. xxii. c. 0010. Cf. L.C. x. 04.

Attached by sewing to one edge (which is cut diagonally across pattern), piece of snuff-brown, fine, plain silk. Fr. of silk wool padding is present.

Warp-rib weave. All very ragged and brittle. Figured fr. 8" × 4½". Plain silk *c.* 9" × 7". Pl. XXXVI, XL.

L.C. ii. 02. a. Felt cap or bag; round; top or bottom lost, lined with green silk. Felt yellow. Very ragged. Diam. *c.* 7½".

L.C. ii. 02. b. Misc. fabric frs., silk, cotton and wool; plain weave; dark brown, buff and red. Very brittle and dirty. Silk waste and silk felt frs. and dark hair (human ?). Bundle as found, 9" × 7".

L.C. ii. 03. Fr. of figured silk. Pattern: cloud scrolls and grotesque beasts and birds on bronze-brown ground. To R., winged leopard facing L.; leaping pose, forefeet on ground, hind legs (missing) thrown well up. Head in profile, jaws open, both eyes and both ears shown fronting. Gorget in two bright blue lines, and two similar lines across body. Wing short, green, outlined bright blue. Body buff.

To L., and slightly above line of leopard, leaping or flying winged goat or deer; buff outlined bright blue, spotted with three blue roundels. Between the two animals, slightly below line of leopard, goose (?), buff partly outlined blue; legs, blue; placed at right angles to line of beasts.

To L. of goat, on line of leopard, 'drifting pronged' element in buff, hanging to cloud scroll. Scrolls, 'vermicular', with spiral and plain nodes; partly blue outlined buff, partly buff outlined on top only, blue; partly green outlined on top blue and below buff.

Three buff Chinese lapidary chars. on one level; below forefeet of leopard, between bird and head of goat, and below pronged element.

Warp-rib weave, finely corded; rather loosely woven. Fr. wedge-shaped. Well preserved. Length 13½", breadth at widest 5¼". Pl. XXXIV, XXXIX.

L.C. ii. 04. Fr. of figured silk. The pattern in blue line on yellow ground is a lozenge shape 1⅝" × ⅞", with a small lozenge intersecting at each angle. Repeat is horizontal and nearly touching in that direction. Vertically it is moved ½ diameter to one side, bringing vertical axis of pattern in line of interval of row above, and forming a chevron space between horizontal rows *c.* ⅛" wide. Colours fairly preserved.

Warp-rib weave. Warp perished. 5" × 3¾".

L.C. ii. 05. a–i. Mass of misc. rags with frs. of bone and charcoal.

(*a*) Fr. of figured silk as L.C. 031 b. 3¼" × 2¼". (*b*) Frs. of brown silk damask, in chequer of herring-bone twill squares on finely ribbed ground. Gr. fr. 12" × 3". (*c*) Two fr. of woollen pile carpet in crimson and yellow, pattern faded. Gr. fr. 9" × 3". (*d*) Piece of strongly woven green repp 11½" × 8". (*e*) Ragged fr. of crimson thick 'box-cloth' (cf. L.C. i. 01) with seams and frs. of plain green and buff silk attached. *c.* 18" × 4". (*f*) Frs. of strong cotton (?). Cloth sewn at one end into a sort of pocket, the other bordered with plain green silk 3¾" wide, 16" × 10". (*g*) Locks of human (?) hair and frs. of calcined bone and mud. (*h*) Quantity of frs. of plain silk rags, buff, green and crimson. (*i*) Small frs. of silk, grass, bone. (*b*) Pl. XLIII.

L.C. ii. 06. Mass of silk rags, &c., similar to L.C. ii. 05. a–i, but without figured silk, carpet, boxcloth, or hair. Much perished. Size of mass *c.* 10½" × 8" × 1½".

L.C. ii. 07. a. Strip of figured silk similar to L.C. iii. 011 (Pl. XXXIV). In this a slight extension of pattern is present showing to L. of leopard a group of three Chinese characters. Length 43", width 4½". Very dirty, perished and brittle.

L.C. ii. 07. b. Misc. frs. of silk fabrics, including strip of loosely woven border, with pattern in bright green and red on yellow ground; three interlacing lozenges repeated at short intervals, with two detached circles in the intervals.

Attached is fr. of red flannel. A piece of plain dark green silk; a fr. of silk waste. Very ragged and brittle. Border 5" × 1' 4". Pl. XXXIII.

L.C. ii. 07. c. Three frs. of figured silk, similar to L.C. 03 (Pl. XXXV), with lining and felt attached. Prob. part of body-band. Very rotten and faded. Gr. fr. 6" × 7".

L.C. ii. 08. a. Fr. of figured silk, similar in all respects to L.C. iii. 04. b (Pl. XXXVI). Between two pieces of this is padding of layers of very thin felt. Very brittle and discoloured. 4½" × 3".

L.C. ii. 08. b. Mass of silk rags; buff, brown, and green. Plain weave, torn and discoloured, some very beautifully woven. One fr., of fine corded buff silk, is made into small sq. bag, with silk tassel at each lower corner. Brittle. Width of bag 7".

L.C. ii. 09. a. Fr. of woollen pile carpet, same as L.C. iii. 014; much worn. Colours brown, red, blue, green, and yellow. Structure like that of L.C. ii. 014.

Pattern arranged in bands, but indeterminate. The

'latch-hook' in brown on yellow occurs in one, as in L.C. i. 08. No back pile. Colours good. 1' × 5¼". Pl. XLIV.

L.C. ii. 09. b. Two frs. of woollen pile carpet. Structure as in L.C. ii. 014. Colours blue, red, and yellow.

Blue bands about 1" wide are arranged in zigzag lines which make lozenge shapes. These shapes are dotted with red, yellow and blue, the blue arranged in nine dots as a St. Andrew's cross in the centre. No pile on back. Much worn. 9" × 9". Pl. XLIV.

L.C. ii. 010. Two frs. of hemp-string matting. Weave as in *Ser.* iv. Pl. XLVIII, T. xiv. 004. b. Well made. Gr. fr. 6" × 3".

L.C. ii. 011. Two frs. of silk girdle or band, made partly of strip of strongly woven braid with blue lines running in waved diagonals across it, and partly of figured silk yellow and green; pattern indistinguishable.

Edges cleverly worked with cord, and whole sewn on foundation of dark brown woollen fabric and felt. Fabric flush with edge on one side (which is oversewn); seems to have continued below band on other.

Band shaped to rounded point at one part; perhaps binding of opening of shoe; cf. L.A. iv. v. 01. Brittle and discoloured. Length 1' 5", width ½".

L.C. ii. 012. Fr. of wood, resembling piece of scabbard. Slightly thinned for about ¾" at one end, giving check perhaps for metal mount.

Surface covered with faint pattern in diagonal lines, dots, and scrolls, such as could have been caused by incising pattern on thin metal covering the wood. Sticking to lower end a piece of ragged brown silk. Length of wood 5", width 1", thickness *c.* ¼". Pl. XXVI.

L.C. ii. 013. Frs. of silk. One of fine corded weave, buff and blue; sewn to piece of loose woolly felt, prob. silk waste. Length 3".

L.C. ii. 014. Fr. of woollen pile carpet. Warp prob. hemp, weft brown wool. Pile *c.* ½" long, in red, yellow and blue. Five shoots of weft between pile. End edge strengthened by plain woven strip turned under and sewn. For a width of 1½" along side edge, a pile is also worked on the back; cf. *Ser.* i. p. 438; iv. Pl. XXXVII, L.A. vi. ii. 0046.

Ground, yellow; border spotted with green; on field, traces of pattern in red, too small to show character of design. Rotten, but colours fairly preserved. 5¼" × 5".

L.C. ii. 015. Strip of leather, white, split into two thongs nearly full length. Thongs doubled over each other and held together at cut end by an eyelet of leather. Whole seems to have been again doubled end to end, and used as loop. Attached is twist of rough grass. Brittle. Length of thongs *c.* 9", width as doubled ½".

L.C. ii. 016. Fr. of woollen fabric, as L.C. i. 01, in colour, weave, and texture. Stout buff silk warp, and surface very like velvet, seeming to have been 'teased' up and felted. Sewn in various directions and inwoven in one place with band of dark purple weft in place of crimson. One seam gathered slightly.

Lining or stiffening of coarse buff cotton cloth. Very ragged and sand-laden. 11" × 8".

L.C. ii. 017. Fr. of woollen pile carpet; pile red, pink, yellow, purple-brown, and pale blue on buff woollen (?) ground. Coarse make. Weft is laid across in bundles of about five strands at a time and warp is widely spaced; fabric is therefore very loose. Very ragged. Pattern indistinguishable. 4" × 2½". Pl. XLIV.

L.C. iii. 01. Fr. of figured silk, similar to L.C. i. 09 and iii. 011; selvedge at one edge. Top and bottom edges cut and sewn; fourth edge torn. Colours well preserved. 6¼" × 3½". Pl. XXXIV.

L.C. iii. 02. Fr. of figured silk; warp-rib weave. Pattern: non-continuous tree-coral cloud scroll in rich blue; two tones of buff and green on rich dark bronze ground.

Fr. is narrow strip the vertical way of cloth, and shows two elements and part of another repeated in vertical direction. Largest, cloud in scaphoid form, the two ends rising and curling over towards each other carrying spiral nodes and branches, one end having a vague resemblance to animal head. From outer side of curved 'neck' thin buff line scrolls downward and outward.

Between the repeats of this element is a smaller spiral scroll with spiral nodes and stiff horizontal offshoots to R. and a freer one to L.; both noded, and having very remote resemblance to bird at right angles to line of 'animals'. No true animals or Chinese chars.

Scrolls have half their thickness blue which branches into the nodes, and half buff. Outlines light buff and blue. 10" × 2½". Cleaned. Pl. XXXIV.

L.C. iii. 03. Wooden box cover, elongated ellipse, rabbeted round edge of under-side to fit side of box. Upper surface convex, decorated with ¾" band of black round edge, and a thin line, incised and darkened, within.

Elliptical panel so formed contains incised outline device in black composed of a sort of nebuly, which runs up on one side and down the other in a continuous line, the bends of the ascending side opposing those of the descending, and the space enclosed between furnished with slightly incised and blackened dots. Device may represent a tree, but is not convincing.

Near centres of long sides are two small holes, in one of which is wooden peg. Evidently for nails to steady or secure lid in position. Roughly made. Good condition. Length 6¾", width 3¼", thickness in middle $\frac{7}{10}$". Pl. XXIX.

L.C. iii. 04. a. Fr. of figured silk in many pieces; warp-rib weave. Dark blue ground; pattern same as L.C. 08 (Pl. XXXIV). Portions of fine felt padding and lining of fine plain silk discoloured to dark brownish yellow. Warp perished. Sizes from 2¼" × 2¾" (largest). Colour good in places.

L.C. iii. 04. b. Fr. of body-band of figured silk; warp-rib weave. On blue ground a network of yellow with lozenge mesh about $\frac{3}{16}$" × $\frac{3}{16}$", and rectang. spots at crossings. In lozenge six yellow dots encircling central dot. In rectang. spot a blue dot. Remains of lining of

fine corded plain silk. Very ragged and dirty. 10" × 10". Pl. XXXVI.

L.C. iii. 04. c. Fr. of figured silk; warp-rib weave. Similar to L.C. iii. 018. A few small frs. of blue plain silk. Very dirty and discoloured; rotten. 4¼" × 12". Pl. XLII.

L.C. iii. 04. d. Fr. of silk, loosely woven gauze, in large check pattern of blue and brownish yellow. Warp and weft are in alternate bands of the two colours, about 2¼" wide. Where blue weaves with blue, or yellow with yellow, the colour is solid; and where one colour weaves with the other the result is a broken tint. Very ragged, but colours fresh and fibre strong. *c.* 10" sq.

L.C. iii. 05. Fr. of leather lash of whip; made of thongs of white leather, $\frac{5}{16}$" broad, plaited round a core of coarse hair string. Well preserved. Length 1' 3½", gr. diam. $\frac{7}{16}$". Pl. XXVI.

L.C. iii. 06. Fr. of grass rope; two thick plies twisted together; coarse. Very brittle. Length 13", diam. 1⅛".

L.C. iii. 07. Three frs. of lacquered wooden box, being part of bottom and side. Roughly elliptical; sides appear to be cane. Lac is applied directly to the wood. Red with black lines. Hard and sand-encrusted. Bottom fr. 4" × 1¾", side frs. 2" × 1⅛" and 2½" × 1½".

L.C. iii. 08. Butt of wooden arrow-shaft, with notch and remains of feather. Broken. Length 4", diam. $\frac{7}{16}$".

L.C. iii. 09. Fr. of wood, prob. cane. Longitudinal section, broken at both ends. Very hard, with pith channel down centre. Well preserved. 2¼" × ¼" × $\frac{3}{32}$".

L.C. iii. 010. a. Fr. of woollen tapestry; shows R. side of human face about half life-size. Conventions of work and colouring closely follow those of the painted work of Mīrān, with similar changes of tone and chiaroscuro.

Outlines are dull brown. Lips bright red. Pink on cheek and shading in purplish grey. Division between lips, blue. Iris of eye brown outlined with black. (Cf. Mīrān 'angel' fresco, *Ser.* iv. Pl. XL, M. III. viii.) Hair in black and tones of brown. Drapery on shoulder, warm grey and yellow.

Background dark blue, on which beside face is symbol resembling a caduceus, in yellow, with a green band between head of symbol and its staff. To R. of face are probably traces of a second fig. having pink and yellow shoulder drapery over purple.

Probably from tapestry hanging. Sand-encrusted and brittle, but colours finely preserved. 5" × 5¾". Pl. XXX.

L.C. iii. 010. b. Three frs. of woollen tapestry, originally sewn to L.C. iii. 010. a, now detached; apparently parts of one large piece. Frs. too fragmentary to make out original design, but it was probably a variation of horse-legged bird motif in L.C. v. 02. a. Pl. XXXI, XXXII.

Background partly blue, partly dark brown; colours of design change as they occur on one or other ground colour. On all three frs. are bird-wing forms, sometimes in outline only and sometimes filled within outlines with a contrasting colour. Three simple oval (leaf?) forms, with pointed ends, occur between reversed bird wings.

An upper and lower register appear to be divided from each other by a simple fret element whose free ends taper to points. Colours used, in addition to ground colours, are bright red, purple-red and two greens. Gr. fr. *c.* 6¼" × 6". Pl. XLIV.

L.C. iii. 011. Fr. of figured silk garment, of triangular shape, made of four pieces very neatly sewn together. Warp-rib weave.

Pattern: on dark blue ground, a continuous 'tree-coral' cloud scroll with animals placed in the undulations. Pattern begins abruptly in middle of scroll. To R. (next selvedge) three Chinese chars. one above the other; to L. of these, lion-like beast but with long crimson horn, rampant, regardant, proceeding to L. Body yellow to shoulder, crimson to near hind foot; crimson head and protruded tongue, and off foreleg; other two legs yellow; outlines pale buff. Above head Chinese char.

To L., above line of lion, horseman to R. Horse trotting, large head, erect spinous mane, arched tail, yellow shaded green. Rider in green coat, buff baggy lower garment; soft yellow cap rising above forehead in point, and point hanging in curve at neck.

To L. on lower line, yellow, winged dragon to R.; drooping tail; large head with open jaws and two forward pointed horns; body marked with three roundels; outlined buff and red.

To L. on level of first beast, another dragon to R. rampant, with backward curving horns; green head and neck, yellow wings and near legs, crimson shoulder, flank, quarters and off legs; outlined buff. To L. on lower level, beast similar to first; but rounder head, no horn, mouth closed; rampant to R., regardant; yellow, spotted or striped crimson; outlined buff.

From L.C. ii. 07. a. it is found that pattern repeats from this point, the first three Chinese chars. reappearing and the same cloud scroll. This is the only example of these cloud and beast patterns repeating in the width of fabric.

Below horseman is a very Rococo feature in cloud scroll, in parts green with buff 'high lights', outlined crimson. Crimson line between buff and green becomes outline in twining towards node, a treatment common in Western, and especially Rococo, decorative painting; in other parts crimson takes the place of green.

For horseman, cf. Chavannes, *Mission archéol.*, I. Pl. XXVI, Fig. 2a. For rider, see sprite L.C. 031. c. For variation of this pattern, see L.C. i. 09; iii. 01. Plain snuff-colour silk lining, torn. 19" × 20". Pl. XXXIV, XXXVIII.

L.C. iii. 012. Frs. of figured silk in blue and buff. Angular Chinese pattern, only partly recognizable; apparently resembling L.C. iii. 04. c. Warp-rib weave. Very brittle and discoloured. Gr. M. *c.* 6".

L.C. iii. 013. Mass of plain silk frs.: buff, crimson, green, blue. Torn and discoloured; some frs. from wide sewn bands. Crimson band 12" × 4¼".

L.C. iii. 014. Fr. of woollen pile carpet, same as L.C. ii. 09. a. Structure as in L.C. ii. 014. Colour of weft

golden brown. Colours of pile: red, salmon pink, light brown, pale pink, yellow, two blues, and grey.

Along one edge of fr. are bands: red, blue, pale blue, shaded through dark to light yellow; then down again to red, and within this a panelled pattern bordered with red. Latter has dark blue field, with inner lozenge (?) of grey-yellow, on which are red flowers yellow centred, and bands of blue, yellow, light grey, and brown. In one corner of blue field is spiral in dark yellow. Colours very rich. 11" × 6". Pl. XLIV.

L.C. iii. 015. Two frs. of woollen pile carpet, similar in structure to L.C. ii. 014. Pattern too fragmentary to be intelligible. Colours on one fr., fine wine red and light indigo; on other, rich crimson, yellow, two blues, grey (or green), brown and pale pink. Much worn. 5" × 4"; 7" × 6¼".

L.C. iii. 016. Fr. of figured silk in two pieces. Warp-rib weave. Pattern indistinguishable on account of dirt. Very brittle. Gr. fr. 6" × ¾".

L.C. iii. 017. Fr. of figured silk garment composed of three pieces of different pattern sewn together.

(*a*) Largest, has design of 'vermicular' cloud scroll with beasts. To R., first recognizable feature is dragon-like beast perched on nodes of scroll, head lowered facing L.; rather long jaws, upright ears (or horns). To L. a vacant space varying from ½" to 1" (perhaps faded).

To L. a lion striding down hollow of scroll, hind legs vigorously drawn; tail curled. To L. a winged beast, striding. The whole faded to buff, excepting the blue which provides most of above details.

(*b*) Next largest fr. is the 'partridge' pattern similar to L.C. iii. 018, encrusted with sand and faded.

(*c*) Third similar to L.C. iii. 011.

Three edges perished and torn. Fourth edge turned under and sewn to plain dark buff silk lining, most of which is missing. Very ragged, and encrusted and brittle. 1' 6" × 1'. Pl. XLII.

L.C. iii. 018. Fr. of figured silk. Type similar to L.C. iii. 017. b; but Chinese lapidary chars. in blue, which is unusual, as they are ordinarily buff. Much sand-encrusted, faded, and brittle. 1' 1" × 1' 2". Pl. XLII.

L.C. iii. 019. Fr. of figured silk; selvedge of similar pattern to L.C. iii. 011. Well preserved but darkened. 1' × 1¼".

L.C. iii. 020. Fr. of figured silk; warp-rib, finely woven, with counterchange (?) pattern of dark rich yellow and dark blue. Pattern fine but not wholly decipherable.

One part: on blue belt-shaped ground yellow palmette with short radiating stems bearing circles. Adjoining, same shape reversed, with blue circles. Very brittle, colour good. 3¼" × ¾". Pl. XXXV.

L.C. iv. 01. a–b. Two silk bags, lined white and covered with patchwork of small triangular pieces of white, green, blue, red and yellow. Mouth of white silk, with cord of same to tie.

Very rotten, but colours bright. (*a*) in better condition than (*b*). Depth *c.* 5", diam. of mouth *c.* 4". Pl. XLIII.

L.C. iv. 01. c. Mass of plain silk frs.; small, fine weave, chiefly tones of buff and pale blue, with small frs. of crimson, dark blue, &c. Also small piece of crimson woollen cloth. All very rotten and tattered. Specimen fr. 9" × 3½".

L.C. iv. 02. Wooden buckle from harness, as L.C. i. 015, but complete. Flat, rectang., with ogee point at one end, sq. at other. Transverse slit near each end, to take flat rope, which is preserved at sq. end. Here it is doubled, and passed through slit from front in loop, which is then brought forward round edge of buckle, and has free ends passed through it, making ordinary hitch.

Incised line of orn. on face of buckle, forming a St. Andrew's cross midway between slits, and continued in an endless line round them, following the ogee point on that side. Triangle within line at sq. end orn. with punched dots, and one such dot near centre of each long edge. In each of these edges, also, below ogee, is slight notch giving an inward continuation of the curve.

Rope of dark brown hemp-like fibre, made of four twisted strands (two-ply) laid side by side and sewn together with string of same kind. Except at loop, the two widths of rope lie side by side; the whole eight strands are sewn together in this fashion, making one broad flat band. Buckle slightly hollowed at back. Wood perished but unbroken. Length to ogee point 3¼", width 2¼", thickness $\frac{7}{16}$", width of rope 1¼", length (broken off) 3". Pl. XXIX.

L.C. iv. 03. Three frs. of plaited leather thongs, exactly resembling an ordinary dog-whip. White, very brittle. Lengths, 4"; 3"; 1½".

L.C. iv. 04. Leather forehead ornament for horse. Stem or strap terminating in disc. Leather is white, and doubled, the edges being turned over to front, and in stitching a line of crimson woollen tufts is introduced. These are placed close together to form a line of pile down centre of stem and a border round disc; white edge of leather shows outside crimson pile.

Leather of stem is continued down back of disc, and forms a flat loop through which a headband was passed to keep disc from swinging out of position. Brittle. Length 6¼", width of stem 1", diam. of disc 2¾".

L.C. iv. 05. Fr. of hemp string, plaited, very brittle. Length 5".

L.C. iv. 06. Wooden leg of food-tray; in form, two rectang. pyramids of unequal size, truncated and meeting at the small ends. Small chamfers at angles of smaller pyramid. Remains of tenon at bottom of larger. Bleached, hard, and split. Base of larger end 1¾" × 1¼", of smaller 1¾" × 1", waist ¾" × $\frac{7}{16}$".

L.C. iv. 07–8. Two carved wooden legs of food-trays. Crudely cut in form of lion's leg, with broken tenon at upper end of each. From different trays. Well preserved. *07*, 4¾" × 1¾" × ¾"; *08*, 4¾" × 1¾" × 1".

L.C. iv. 09. Fr. of wooden goblet. Circular, echinus-

shape body, with thickened rim, short cylindrical stem and spreading conical foot. On under-surface of foot various roughly incised lines, among which a group of three diverging from a point; another of five forming a half-open bud shape. Most of cup lost. Plain wood, unpainted. Sand-encrusted. H. 4¾", diam. of base 3¼". Pl. XXIX.

L.C. iv. 010. Scrap of woollen fabric, dark brown, plain weave. 1" sq.

L.C. v. 01. Fr. of fine woollen tapestry; prob. part of body-band. Through centre runs a band 1½" wide, edged by thin blue-black lines; band is divided into sections 3¼" and 3¼" alternately; in former is fret in red on blue-black ground.

Crossings of the lines of fret form four Svastikas, outer limbs being produced to carry on fret; in four spaces alternating with the Svastikas are four square flowers divided by diagonals and diameters into eight triangular petals alternately red and yellow. Cf. centre of Egyptian bowl, Brit. Mus. No. 4790.

In the 3¼" section is a pattern of counterchange 'vandykes' or chevrons in yellow and purple brown. Each 'vandyke' has a vertical midrib terminating at its lower end in a square spiral, of which there are four and a half abreast, from side to side of band. This pattern is twice repeated in length of section.

On each side of band described, the material is shaded from red outwards for 1¾" to purple brown. Beyond this it changes to a fine dark green. At edge of purple brown is a delicate pattern in yellow of undulating leaf and spiral, $\frac{3}{16}$" wide.

The whole effect is late Greek, and very beautiful. The technique is that of the 'Coptic' tapestries. Where two colours meet in the pattern, in the same line as the warp, the opposite threads are carried across the opening, alternately, about every eighth thread. 15"×8½". Colours good. Fabric perished and ragged. Pl. XXXI.

L.C. v. 02. a. Strip of fine woollen tapestry in three frs. Pattern divided into seven longitudinal bands, centre being broadest; this contains, on dark purple-brown ground, an acanthus 'nest' from within which rises breast and head of bird in profile between thin scrolls.

On either side and facing nest, bird with wings spread, solid recurved band-like tail, pair of horse's forelegs in galloping pose, supported on scalloped cloud; under legs a square dot. Whole of this motif repeated, but between repeats a symmetrical scroll ornament like two anthemions reversed. In the centre of each anthemion is a long, narrow, detached green leaf.

Colouring of bird band: crimson, buff (light and dark), brown, green. These are counterchanged throughout the pattern, but scrolls are always brown or dark buff. Head of bird always contrasting colour with body, and wings different again.

Group of three bands or 'guards' above and three below form borders to central band. Centre guard, heart-shaped flower between pair of diverging leaves in profile growing from stem which bifurcates downwards and turns into scrolls.

This pattern has its axis in length of strip and repeats closely, the colours interchanging. Colours in this band: pink, buff, two tones of blue on crimson ground. Bands on each side shaded; inner from blue through pink to buff; outer pale buff to dark buff.

Outlines, light or dark, used with discretion. Both long edges have been turned over and sewn. R. short edge complete; L. short edge torn. Perished, ragged and discoloured. Gr. fr. 21"×4". (For damask lining, see L.C. v. 02. b.) Pl. XXXI, XXXII.

L.C. v. 02. b. Fr. of woollen damask (lining of L.C. v. 02. a.); dark brown, woven in manner of L.C. i. 011, but rather loosely. Pattern: double chevron forming lozenges c. 6"×3", with inner concentric lozenges and lozenge centre. Sewn along two edges. For similar fr., see also L.C. v. 026. Much torn and rotten. 13"×4½".

L.C. v. 03. Fr. of woollen tapestry band. Divided into four longitudinal sections. First, dark brown ground with pattern of group of four buff square dots placed lozenge-wise; repeated at intervals of about 1".

From alternate groups, a pair of elongated curved pod-shapes issue R. and L., each pair a different colour—pink, blue, yellow-green, dark buff. Second and fourth bands in rainbow treatment, crimson, buff, blue. Third, red ground with simple long rudimentary lily-shapes in various colourings; their axis in direction of length of band. Rather coarse work. A debased rendering of L.C. v. 06. a. Ragged and fragile. 7"×4½". Pl. XXXI.

L.C. v. 04. Fr. of woollen tapestry, similar to L.C. v. 03 (Pl. XXXI); but an additional piece attached by coarse sewing at one end, having red ground and prob. fret pattern in yellow and blue. Blue outer edge. 7½"×5½". Badly worn, but good colour.

L.C. v. 05. Fr. of woollen tapestry, prob. similar to L.C. v. 03, but much faded and threadbare. 4½"×3½". Very brittle.

L.C. v. 06. a. Fr. of fine woollen tapestry border (detached from lining L.C. v. 06. b). Prob. part of body-band or garment. On purple-brown ground an imbricated series of lily-like forms of various colourings, red, buff, blue. The lily is fleur-de-lis type; the two outer petals have always thick centre line of a contrasting colour, and centre petal is tipped with pale buff. Between two adjacent lilies and springing from deep within the lower one are two outward curving leaves of petal shape, alternately red with buff tips and blue with brown tips.

On either side of this band of ornament is rainbow band shaded crimson, buff, blue, beyond which is visible fr. of further pattern. Very good work. Two or more pieces joined without regard to matching pattern. 13½"×4½". Recalls 'Coptic' pattern. Pl. XXXI.

L.C. v. 06. b. Fr. of woollen fabric, coarse plain weave,

sewn to another slightly finer. Lining of L.C. v. 06. a. Dull grey-brown. Very rotten and torn. *C.* 1′ 6″ sq.

L.C. v. 07. Fr. of woollen tapestry border, consisting of two bands of plain colour, crimson and black (faded). Edges torn and unravelled. 9″ × 1½″.

L.C. v. 08. Portion of hemp or hair (?) string trace, with loop at end. Composed of four twisted cords placed side by side and sewn together, leaving loop between centre pair. Remains of covering of fine wool which was prob. padding and covered with fabric. Perished. 14″ × 1¼″ × ½″. Pl. XXVI.

L.C. v. 09. Fr. of woollen tapestry border, prob. part of body-band. On red ground, eight-petalled flower, centre buff, alternate petals resp. blue and yellow arranged in square plan. L. a lily-like flower in profile with three yellow petals and two alternating, brown; two outward recurved blue stems with buff tips issue from lower side. To L. probably similar flower, modified. At extreme L. a bird (buff) with uplifted wings.

On each side of red band a band shading from blue to buff. Above, a band of groups of four buff squares placed lozenge-wise, with pairs of red and green curved petals diverging R. and L. On one side a further band of buff, beyond which again traces of purple.

All very stylized and of same type as L.C. v. 06. a (Pl. XXXI). Colours well preserved. 8″ × 4½″. Very fragile.

L.C. v. 010. Fr. of woollen 'box-cloth', as L.C. i. 01, and same colour. Well preserved. 2½″ × 1¾″.

L.C. v. 011. Fr. of woollen repp fabric, as L.C. ii. 05. Warp, a perfectly made buff thread of fine glossy fibre, very tough. Weft, a fine pale green wool. Tough, but ragged and discoloured. *c.* 6″ sq.

L.C. v. 012. Fr. of plain silk, buff, fine weave, very ragged. 8″ × 6″.

L.C. v. 013. Silk-covered felt-pad, suggesting a badge. Made of 'vesica'-shaped fr. of fine felt, covered on obv. with fr. of finely corded crimson silk cut from larger piece of embroidery, and showing parts of lines and spirals in yellow and blue chain stitch. Back covered with plain buff finely corded silk. Edge bound with brown silk lozenge pattern damask, with lozenge-shaped piece over lower point.

Narrow blue ribbon for hanging attached to top point. Very neat work. Fair preservation. 'Badge' 1¾″ × 2¼″, ribbon 3½″ × 1¾″. Pl. XLV.

L.C. v. 014. Fr. of figured silk. Pattern of 'stepped' scrolls, indistinct in blue, buff and red. Torn, faded and brittle. 6″ × 1¼″.

L.C. v. 015. Mass of silk frs., very ragged and brittle; plain silks, buff, green, crimson, &c., much faded, and two pieces of tapestry cloth with indeterminate and unimportant fr. of pattern. Buff fr. 1′ 3″ × 10″.

L.C. v. 016. Fr. of cotton fabric, coarse plain weave, fine crimson. Well preserved but ragged. 1′ 8″ × 11″.

L.C. v. 017. Two frs. of figured silk, in bronze and dark green. Pattern: rows of rectang. billets, alternating with rows of varying patterns, e.g. meander, concentric circles and dots, a sort of dumb-bell, chevron, and so on. Cf. fr. in bundle L.C. ii. 05. a, and *Ser.* iv. Pl. LV, T. xv. a. 002. a. Colour good. Fabric brittle. 4″ × 1¼″ (washed), and 6½″ × 1¼″. Pl. XLII.

L.C. v. 018. Cuff (?) of woollen repp, crimson, edged with green silk, lined with felt, and patched with finer brown repp. Sand-encrusted. Length 6½″, diam. of mouth 6″.

L.C. v. 019. Strip of woollen tapestry, in dark blue, red, yellow, and green; both edges torn.

Along centre, a band of transverse bars alternately blue and red. On either side a band of yellow, shading to green and blue. Outside one of these a band of small chequer, blue and red; outside the other a plain line of red and a broader band of blue. Finely and evenly woven. Rather brittle and discoloured. 9″ × 1½″. Pl. XXXI.

L.C. v. 020. Frs. of plain felt and silk waste. Gr. M. 3½″.

L.C. v. 021. Fr. of buff felt, in two pieces, with four-petalled flower of thin blue felt, *appliqué*, secured by stitching. Rather perished. 3½″ × 3½″, flower 2″ × 2″.

L.C. v. 022. Scrap of thick gauze-like silk (?) fabric; blue, woven in lines of solid and open-work, each about $\frac{3}{16}$″ wide. Fragile. 1¾″ × 1″. Pl. XXXVI.

L.C. v. 023. Scrap of figured silk, similar to L.C. v. 027. b (Pl. XLIII). Fragile, much faded. *c.* 3″ × ¾″.

L.C. v. 024. Mass of woollen and cotton fabric frs.; coarse, plain weave; red, dark brown, and buff; one fr. red in herring-bone weave. Gr. fr. 13″ × 11½″.

L.C. v. 025. Three frs. of woollen repp fabric, red and buff, with flannel-like surface. Cf. L.C. ii. 016, &c. Ragged and perished. Gr. fr. *c.* 7½″ × 6″.

L.C. v. 026. Fr. of woollen damask; same weave and pattern as L.C. v. 02. b, but light brown. Fair condition. 7″ × 5″.

L.C. v. 027. a. Three frs. of figured silk, with pattern in greenish buff, and buff on a grey-blue ground. The surface is divided into lozenge shapes by lines crossing in opposite directions at about 60°.

At the crossings are rosettes, and in each space a pair of rams with heads and forelegs meeting and bodies curved backward and upward, the hind legs approaching in upper angle of lozenge, where a small leaf occurs between them.

The pattern is reversed (turned over) in the adjoining spaces above and below; cf. L.C. v. 027. b. Very ragged and brittle. 6″ × 2¼″; 9¼″ × 2″; 8½″ × 2″. Pl. XLIII.

L.C. v. 027. b. Seven frs. of figured silk. Pattern in buff on blue-grey with same motif as L.C. v. 027. a; but the grotesque animals have deteriorated into a sort of

continuous cloud scroll, and the rosette into a square. Mostly very irregular rags. Very brittle. Fr. *c.* 7¾" × 3". Pl. XLIII.

L.C. v. 028. Three frs. of woollen canvas; one pink, others green (?) and buff. Coarse. Gr. M. 4".

L.C. v. 029. Fr. of plain silk; small corded weave; very rich colour (crimson) and fine texture. Insect-eaten. 2½" × 2".

L.C. v. 030. Fr. of plain silk, dark pink, extremely finely woven. To two edges are sewn pieces of more loosely woven dull ochre silk. Perished and stained. 7½" × 8".

L.C. v. 031–4. Four frs. of wooden arrow-shafts. Butts only, orn. with bands and lines of red and black. *033* has chequer pattern in red; notch missing. *034* has remains of whipping near notch. Lengths 10⅝", 12⅜", 7⅞", and 3½", diam. of all ⅜". Pl. XXVI.

L.C. vi. 01. Fr. of silk damask, white or pale cream colour, with small pattern consisting of zigzag lines about ¾" apart, between which is row of small lozenges ('pheasant's eye' or '*bulbul chashm*'). Much discoloured. Very ragged and perished. 2' × *c.* 1'. Pl. XLIII.

L.C. vi. 02. Fr. of plain silk, very finely woven. Orig. prob. pink, now very discoloured. Remains of yellow silk sewing at two edges. Very brittle and perished. Length 1', width 1' 7".

L.C. vi. 03. Fr. of figured silk, same as L.C. 01 (Pl. XXXV), *q. v.* Weft here blue and brown, with yellow-brown spots. Colour well preserved. Fabric much perished. 6" × 2".

L.C. vi. 04. Fr. of plain silk, faded blue, finely woven. Much discoloured; very ragged and perished. Length *c.* 10".

L.C. vi. 05. Fr. of plain silk, pale buff or white, doubled and sewn at edges where frs. of adjoining silk show. Very brittle, ragged, and perished. 6" × *c.* 4".

L.C. vi. 06. Fr. of silk waste. In mass. 6" × 3¾".

L.C. vii. 01. Misc. fabric frs., including large fr. of strong cotton fabric. Selvedge on one side, cut to curve on another, and one corner torn. Irregular shape, but suggestive of part of coat. Strong but discoloured.

With it another fr. of same fabric, rotten and much torn, and misc. small frs. of plain silk, and silk and wool felt. Large fr. 27" × 3".

L.C. vii. 02. Fr. of figured silk, finely woven, with dull yellow pattern on blue ground. Pattern is angular meander, the lines *c.* ¾" apart at their nearest points. In the bends are placed two sq. dots, excepting at the 7th, 14th, 21st, and 26th bends, in which are Chin. chars. repeated vertically but differing transversely. Along each selvedge are more chars. in pale buff, repeated at every meander, but differing on opposite selvedges.

Full width of pieces is present, the extreme edge being pale buff about $\frac{3}{16}$" wide. Fairly preserved, but torn, with small pieces of the same, brittle and discoloured. Length 12", width (selvedge to selvedge) 19". Pl. XXXV.

L.C. vii. 03. Wooden implement, prob. plasterer's spatula. Long pieces of wood, rectang. in section; centre (waist) flattened at sides for grasping; ends flattened on other two faces into paddle-shape for smoothing wet plaster. Good condition. Length 13", waist 1" × ¾", blades 1½" and 1¼" × ⅜" to $\frac{1}{16}$".

L.C. vii. 04. Mass of frs. of silk embroidery. Ground, very fine corded silk of rich crimson embroidered in chain stitch with fine silk thread, blue, brown and buff. Pattern of graceful stems, leaves, and flowers with small simple petal shapes, *semé* in patches.

Plain blue and buff silk sewn in places on back as lining, and a few of the embroidered pieces sewn together without regard to continuity of pattern. Fine work and colours well preserved, but somewhat sand-encrusted. Average size of fr. *c.* 3" or 4" sq. Pl. XXXV, XLIII.

L.C. vii. 05. Misc. frs. of plain silk and human bones, with fr. of silk embroidery identical with the preceding. Plain silk blue and buff. Many of the pieces sticking together, and some (with fr. of embroidery) sticking to bones.

On fr. of blue silk four adjacent bones from phalanges of foot. Other loose frs. of bone also present; all apparently those of woman or child. Very fragile. Gr. fr. (silk) 8" × 3".

L.C. vii. 06. Two frs. of plain silk garment; body-band (?) in several pieces. Silk light buff and green, with stiffening of coarse brown cotton (?) canvas. Very ragged and dirty. Gr. fr. 1' 9" × 9½"; smaller 1' 1" × 5".

L.C. vii. 07. a. Frs. of figured silk garment, consisting of strips. Warp-rib weave; ground bronze, blue, buff, and yellow 'vermicular' cloud scroll; padded with fine soft felt and lined with plain thin silk. The form of edge of garment seems to have taken a long elliptical shape with flattened point at one end, to which is sewn a bow of blue silk with long ends. About 12" from the bow a kind of cord (formed by oversewing plain silk upon felt) runs across the ellipse and curves back to join the bow.

The space contained between the strips was filled with plain silk, which is continued into the other half of the ellipse, that half being incomplete. A small fr. of brocade of same pattern as L.C. i. 06 (Pl. XLII), sewn to larger piece.

b. Two detached strips of brocade may belong to it; of these, one shows a floral scroll in blue, green and buff on copper ground. Sand-encrusted and ragged. Gr. fr. 30" × 2".

L.C. vii. 08. Two strips of plain silk, white, knotted together at their ends. Soft and well preserved, but discoloured. 18" × 3".

L.C. vii. 09. Frs. of silk damask, dark buff, finely woven. Pattern a well-designed stepped chevron in double lines, containing between them a simple fret. Adjacent chevrons are opposed point to point without touching, and in the lozenges so formed are pairs of cranes, regardant.

In series of lozenges below are pairs of griffins, but placed on all fours against vertical centre-line of lozenge, so that their four feet are opposite each other, and entire device is at right angles to the pairs of cranes. In lozenges above, pairs of dogs (?) placed similarly to griffins. Above sheep and below griffins are geometrical lines which may form trees, but are fragmentary. Axes of these are parallel to that of cranes. Very rotten. Gr. fr. c. 12" × 6". Pl. XL.

L.C. ix. 01. Frs. of silk rags, buff and cream, part sewn in band; plain weave. Gr. length c. 1' 8".

L.C. ix. 02. Fr. of figured silk, like conventional tiger-skin in dark brown and yellow. Ragged and brittle. c. 5" × 3½". Pl. XLIII.

L.C. x. 01. Mass of silk fabric frs., plain weave, dull green, blue, white crimson and buff, with frs. of silk fluff and vegetable fibre, and silk bow. Rotten and matted together. Gr. length 1' 4".

L.C. x. 02. Fr. of woollen pile carpet. No pattern visible. Much worn and discoloured, but pink and dark brown pile distinguishable. 5" × 4½".

L.C. x. 03. Four frs. of woollen fabric; coarse, ribbed weave, red, brown, and buff. Gr. length 11".

L.C. x. 04. Fr. of figured silk, in many pieces: warp-rib weave, in rich blue and golden yellow. Pattern: to R., R. eye, corner of jaws and R. leg and shoulder of large T'ao-t'ieh ogre; leg is bandy and foot, turned towards jaw, is furnished with three thin voluted claws.

Thin spines rise from shoulder curving slightly into a form of eye which is large, elliptical, and formed of three concentric rings with centre dot. At forehead V-shaped lines following curve of elliptical eye. On head solid, tall, thin triangles; ear pointed; at shoulders curved markings of background colour.

It is in fact an extremely close but much larger rendering of the T'ao-t'ieh in L.C. ii. 01 and prob. same colouring. From corner of mouth a thin solid band of blue protrudes horizontally about ¾", then drops at about 30° outward for about 1", then again runs horizontally or perhaps curving slightly upwards.

On this curving line stands lion of L.C. ii. 01 (Pl. XXXVI, XL), with rudimentary wing marked by angular yellow lines and a small blue point projecting above shoulder. The neck greatly elongated and upright, with sharp spines projecting and curving upward and continued as shorter spines on top of head; yellow roundels on body. Lion faces ogre in manner of heraldic supporter.

Above lion and curling in from L. tree-coral cloud scroll in silhouette, but with thin line following contour of upper edge about $\frac{1}{16}$" from it. It seems probable that the curved stem on which lion stands is the stem of the cloud scroll as the completion is missing.

Pattern repeats vertically quite close, as in L.C. ii. 01. Height of T'ao-t'ieh head 3¼", which is the width of the repeat. Two repeats and top and bottom of two more are present. A small and nearly perfect fr. ⅞" × 2⅜" does not join to larger fr. Large fr. cut in curve at bottom edge and ragged at other edges.

Weft perished and the whole reduced to mere twisted strings of warp which were opened out with great difficulty and give figure. Colour brilliant. Gr. fr. H. 9½", width 3¼". Pl. XXXV, XXXVII.

L.C. x. 05. Leg of wooden food-tray, sq. in section, sides cut concave forming thin waist. Projecting edges at base cut sq. Broken tenon at top. Well preserved. Length 4½" without tenon; upper end 1⅜" × 1⅜"; lower end 1¼" × 1"; waist ⅞" × ⅞"; tenon $\frac{13}{16}$" × ⅞" × ⅜".

L.C. x. 06–7. Pair of legs from wooden food-tray. Lion leg type, with edges chamfered. Two horizontal saw-cut lines on sides of dosseret. Long tenons at top. Well made and of good proportions. Well preserved. Length over all 5½", gr. width 1⅜", thickness ¾".

L.C. x. 08. Leg of wooden food-tray. Lion leg type, boldly curved. Depression above hock very deep, edges rounded. Mouldings of dosseret, flat fillet above deep quirk squared at projecting edges. Round dowel broken off level with top surface. Well preserved. Length 3¾", gr. width 1⅛", thickness ⅝". Pl. XXIX.

L.C. x. 09. Fr. of wooden handle of dagger, split lengthways through centre, showing oxydized scale from tang of iron blade and rivet through intact side. Short cross-guard, broadened pommel. All edges sq., showing dagger was not for use. Well preserved. Length 4$\frac{5}{16}$", cross-guard 1$\frac{7}{16}$", grip at broadest ¾", thickness of fr. $\frac{5}{16}$". Pl. XXI.

L.C. x. 010. Object of leather; soft buff, stuffed with coarse vegetable fibre. In shape somewhat like large fish head.

On L. side, in position of eye, is raised boss of leather, covered with blue felt, from centre of which projects thick short leather tab with crimson felt button. No eye on R. side; but layer of thick felt between fibre and leather, finished off in projecting ridge round profile of snout. Roughly but strongly made; now dilapidated. Perhaps part of saddle or camel trappings. 7½" × 4½" × 3½". Pl. XXVII.

L.C. x. 011. Fr. of bent wood (cane ?). Prob. part of side of box. 1⅜" × 3⅝" × $\frac{3}{32}$".

L.C. x. 012. Fr. of wooden comb, with fine teeth, and arched back. 3¼" × $\frac{13}{16}$" × $\frac{3}{16}$".

L.C. x. 013. Wooden comb, with very fine teeth, and high arched back. Dark rich colour; well made. 2⅝" × 2½" × $\frac{3}{16}$". Pl. XXI.

L.C. x. 014. Fr. of leather; well dressed, buff, with marks of stitching all round and across. 6⅝" × 4".

L.C. x. 015. Wooden food-tray; elliptical with flat sides; upper surface hollowed to form shallow cavity. Many knife cuts inside; originally four-legged. One leg of a shape suggesting a squat Doric shaft and capital, detached; tenons of two other legs in holes. No projecting sockets. Inside prob. originally coated with some kind of polish. Broken at one end. 16¼" × 10½" × (H. with leg) c. 4½". Pl. XXVII.

L.C. x. 016. Wooden food-tray; flat, rectang., with slightly raised sloping rim and four sq. projections as feet. All cut from the solid, with small adze or chisel with chipped blade. Under-side much scored from knife cuts. Roughly made. Good condition. 1′ 7⅞″×9½″×1⅛″. Pl. XXVII.

L.C. x. 017. Horn; small, hooked, plugged with wood at base, and pierced with two rectang. holes 1″ apart in thick part. Prob. handle of stick or pickaxe. Length 5¼″, gr. diam. ⅝″. Pl. XXI.

L.C. x. 018–22. Five frs. of wooden arrow-shafts; *019, 021, 022* butts, showing notch, and *021–22* showing remains of red and black lacquer (?) and bending. Gr. fr. (*019*) length 9⅞″, diam. 7/16″.

L.C. x. 023. Fr. of bent cane lacquered box, side of. Outside black with red lines and border of reversed volutes in black and dark red on red ground. Inside red, with black border lines. 6″×1⅞″×⅛″. Pl. XXI.

L.C. x. 024–6. Three legs of wooden food-trays; all of plain-waisted cylinder shape, with sq. tenon at top. *026* is upper half of leg only. H. with tenon 4″, diam. of top 1⅛″, of waist ⅞″.

L.C. x. 027. Wooden ladle: small, with round hollowed bowl and straight handle (broken), cut in one piece with bowl and rising from it at slightly acute angle. For this type of ladle, see paper painting Ast. vi. 3. 05 (Pl. CVII). Length 2⅞″, bowl 1″×⅞″. Pl. XXI.

Section VII.—THE ANCIENT CASTRUM L.E. AND THE REMAINS ON MESA L.F.

However fascinating were the finds which emerged from the grave-pits of L.C., it was imperative to resume by noon our march towards the day's goal and to leave the completion of the work of clearance for the return journey. As we continued our tramp north-eastwards an uninscribed coin was picked up about a mile from the Mesa, and just there we observed the last of the scanty pottery debris which so far had marked an area of scattered occupation. A little farther on we crossed amidst Yārdangs a perfectly marked ancient river-bed; its winding course came from the south-west and was probably identical with the one we had passed on our way to the Mesa.[1] The clearly defined bed was about 90 yards wide and attained in the middle a depth of about 26 feet, measured from the top of the steeply eroded banks. Beyond it the trunks of dead Toghraks occurred less and less frequently, and about three miles from L.C. ceased completely. The whole landscape was unutterably desolate. March resumed from L.C.

In a belt of boldly cut Yārdangs, about 3½ miles from the Mesa, I was surprised to observe some low tamarisks and scanty reeds, all dead, of course, on flat eroded ground between Yārdangs. They could manifestly have grown up only at a time when water had returned to this wind-eroded ground, probably for a short interval. The impression of comparatively recent water action on this ground was confirmed as we proceeded farther. Soon the Yārdangs became short and their slopes assumed a rounded loamy appearance. From about the fifth mile their height sank to 4 or 5 feet only, and we came frequently upon open patches where the almost level surface was covered with *shōr*, hard and cracked. In a few places quasi-petrified reed stalks could be distinguished on the salt-encrusted soil. Wherever Yārdangs were met with up to the seventh mile their soft slopes showed salt-impregnation, obviously due to temporary submersion. Traces of return of moisture.

Farther on, patches of dead tangled reeds occurred here and there on the tops of the Yārdangs, which, though now bare of *shōr*, were still quite low and showed the same water-worn appearance. The depressions between them were regularly covered with hard cakes of cracked clay, distinctly suggesting that water had reached this point and dried up there at no very distant date. It has occurred to me since that this may have been due to occasional flooding from the valleys which descend from the Ulun-temen-tu portion of the southernmost Kuruk-tāgh range, and which send their, no doubt, rare drainage in this direction.[2] It was significant that the tamarisk bushes between the Yārdangs looked in places as if they had died but recently, and that one of the old tamarisks passed was still alive in its upper portion. The level patches of ground with a surface of cracked Yārdangs of water-worn appearance.

[1] See above, p. 225.

[2] See Map No. 29. D. 2, 3.

clay became increasingly frequent after we had sighted from afar the low black line of wall of the fort, L.E., which Afrāz-gul had reported. Thus progress became easier for the porters over the last portion of the day's tramp which, just as darkness was approaching, brought us to the ruined circumvallation, at a distance of close on 19 miles from the Lou-lan station.

Arrival at ruined circumvallation.

The first rapid examination, effected in the dusk of that evening, revealed, to my great satisfaction, a circumvallation agreeing absolutely in constructive features with the Limes wall of Han Wu-ti along the Tun-huang border. Here, as there, it was the ingenious method of building with regular alternate layers of stamped clay and of carefully secured reed fascines that had saved the walls from destruction by the relentless attack of wind-erosion. How powerfully this destructive force here operated was strikingly illustrated by the deep hollows and Yārdang trenches which it had scoured out within the ancient circumvallation (Fig. 162). Outside, the ground had been lowered by it to a fairly uniform level of about 20 feet below the original surface of the soil, as marked by the foundations of the fort walls (Fig. 161).

L.E., *point d'appui* on Han route.

The close examination of the fortified *castrum* made next day left no doubt that it dated, like the Tun-huang Limes itself, from the first military advance of the Chinese into the Tārīm basin, about the last years of the second century B.C. My subsequent explorations have fully confirmed the conclusion then drawn that it had been constructed to serve as a *point d'appui* for Chinese missions and troops on their first reaching habitable ground in Lou-lan territory, after having crossed the dry salt-encrusted sea-bed and skirted its absolutely barren north shores. It thus represented, as it were, the bridge-head of the desert route by which that advance had been made, and which the Tun-huang Limes was intended to safeguard at its eastern end. Having become so familiar with that ancient Limes and the technical skill displayed in its construction, I was particularly pleased to see how well the same old Chinese engineers had also done their work at the western end of the desert route. For two thousand years it had successfully withstood the attacks of wind-erosion, the most formidable enemy of all human constructions in this region. In spite of the terrible havoc wrought by it within the enclosed area, the walls had nowhere been completely breached, in marked contrast with the fate of the walled enclosures of L.A. and L.K., which had been far less carefully constructed.

Orientation of walled enclosure.

As the sketch-plan Pl. 12 shows, the ruined *castrum* had approximately the shape of a rectangle. The walls are not correctly orientated to the cardinal points of the compass, as, in accordance with Chinese tradition, walled towns or *ch'êng* usually are, but show a divergence of 8 or 9 degrees. This divergence, though not as marked as in the walled enclosure of L.A. and in all buildings within it, had the same result as it had there. It made the approximate 'north' and 'south' walls lie closer to the direction of the prevailing east-north-east winds, while bringing the other two wall faces straight across them.[3] This agreement in the modified bearings of the walls in both enclosures seems to justify the conclusion that the special orientation was in L.E., as in L.A., an intentional adaptation of the traditional scheme, meant to secure protection from the prevailing and most trying winds of this region.[4] The length of the east and west walls, measured outside, was about 450 feet, while that of the north and south faces was about 400 feet. The main gate, about 10 feet wide, led through the southern wall (see Fig. 160), but not exactly in the centre; and another somewhat narrower through the north face. Scanty remains survived of the timber frame-

[3] Cf. *Serindia*, i. p. 388; also above, p. 214.

[4] It deserves to be noted that in the Mīrān fort, an irregular oblong in shape and probably of Tibetan origin, one of the walls faces similarly to the east-north-east and shows special protection against the erosive force of the prevailing winds; see *Serindia*, i. pp. 456 sq.; iii. Pl. 30. In L.K. one of the fort walls faces to the north-east, and the same orientation is observed in all the surviving quarters of the interior; see Pl. 10. It is of some interest that none of them has an entrance from the north-east, i. e. the direction most exposed to the winds.

work once revetting the south gate, while the other, only a kind of postern, masked by a structure in timber and wattle, showed traces of having been lined with masonry of sun-dried bricks.

Walls as on Han Limes.

The chief interest of the ruined fort proved to lie in the remarkably solid construction of its walls. They were built, as the photographs (Figs. 161, 163) show, of layers of closely tied fascines, made up of tamarisk twigs and about one foot thick, alternating with strata of stamped clay, five to six inches thick. This, owing to salt-impregnation, had consolidated into cement-like consistency. The several layers were provided with a revetment of longitudinally fixed fascines. These survived in places where the position of the wall faces or else accumulation of drift-sand had afforded them some protection, but elsewhere had been loosened and carried off by the erosive action of the wind. The structural method employed was exactly that observed by me along the different sections of the Tun-huang Limes and fully described in *Serindia*.[5] The proportionate thickness of the alternating layers of tamarisk fascines and clay was the same as I had noted in the well-preserved stretch of the Limes wall near the watch-station T. xxxv, north-east of Tun-huang, where the fascines had similarly been made from the tamarisk growth of the adjoining ground.[6] Both structures conveyed the same impression of solid regularity and neatness; and this impression helped to convince me from the first that there can have been no great interval between the construction of L.E. and the time when the patient builders of Han Wu-ti's 'Great Wall' were at work in the desert of Tun-huang.

Measurements of walls.

The thickness of the walls appeared to have been about twelve feet where they rested on the ground. Their inside face still rose in places almost vertically, as seen in Fig. 163; but outside, the grinding action of erosion had caused the originally steep wall face to recede in what had come to look almost like a succession of steps. Thus the width of the wall at what is now the top was reduced to five or six feet. Towards the middle of the east face the wall still rose to a height of over ten feet, with seven double layers of fascines and clay intact. Elsewhere it had been worn down a good deal more. That its height had been originally considerably greater was evident from a portion of the west wall. Undercutting of the ground through erosion had caused it to subside bodily towards the interior, but in spite of the consequent distortion some ten successive double layers could still be counted here.[7] Near the south-eastern corner and again towards the middle of the west face the foundation layers of the wall showed a thickness of about eighteen feet, probably indicating the place where stairs had led to the top. That the top once carried a parapet is probable; but it must have been particularly exposed to the corroding force of the sand driven across the walls, and no remains of it could be traced.

Effects of wind-erosion on interior.

The walls of this *castrum*, built as carefully as those of the Tun-huang Limes and a good deal thicker, were strong enough to withstand any attack that a local rising or raiding bands of Huns could have directed against it. The *castrum* could thus well serve its obvious purpose as a safe resting-place for any missions, military detachments, convoys, or trade caravans reaching the eastern edge of the once habitable area of Lou-lan from the side of China or preparing for the trying desert journey across the waterless wastes of gravel, salt, and sand in the opposite direction. The materials and methods of construction used for its defences were those best adapted to local conditions. Even the relentless, if slow-grinding, force of wind-erosion, ever at work in this desolate region, had failed to overcome them completely. But if the winds and the driven sands could not efface this ancient circumvallation, they seemed to have done their work of destruction all the more effectively upon the interior and whatever once stood there. The whole of the enclosed area

[5] Cf. *Serindia*, ii. pp. 568 sq., 605 sq., 736.

[6] See *ibid.*, ii. p. 605, Fig. 157.

[7] Compare the contorted wall line in Fig. 162 with the similar effect produced on a small section of the Limes wall near T. XIV. a, as seen in *Serindia*, ii. Fig. 189.

presented a terribly eroded appearance, with the ground cut up into Yārdang trenches and ridges, or, as along the west and north walls (Fig. 162), carved out into deep continuous hollows. No doubt the very resistance offered by the solid fort walls, obstructing the winds in their progress, was causing them to exert their destructive force with increased intensity on the ground within. A violent sandstorm from the east-north-east on the second night of my stay gave me a very trying personal experience of this. Regular whirlpools of sand raged around our bivouac in one of the hollows below the north wall, making it impossible to keep a fire alight.

Scanty structural remains of interior.

It is easy to understand that under conditions such as these only the scantiest remains of the structures that once occupied the interior could survive. Quantities of red potsherds of great strength were strewn about the eroded soil both within the walls where this was clear of sand, and to a less extent outside, a proof of prolonged occupation. Clay 'witnesses', rising here and there above the flat top of the Yārdang ridges, probably indicated the position once occupied by quarters now completely effaced. But only at two places could slight remains of structures actually be traced. At a distance of about twenty-four yards from the north wall the brickwork foundations of a building, ii, could barely be traced on the top of a terrace rising more than twenty feet above the eroded hollows near by. Judging from what could be made out of the line of walls north and west, the area occupied by it measured at least about seventy by thirty-five feet. Fissured beams, about a foot square in section and up to twenty-six feet in length, lay about in utter confusion and suggested that the foundations and roof of the building had been of very massive construction. Any smaller debris had been completely disintegrated and blown away long ago, and the search of the ground here proved fruitless.

Documents excavated at northern gate.

On the other hand, a narrow ledge of uneroded ground adjoining the north gate on the inside retained short portions of the walls of a structure built of timber and tamarisk wattle. An accumulation of refuse, mostly reed-straw and dung, had here protected the foundation beams together with a foot or so of the wattle wall rising above them. Timber debris strewing the slope below obviously belonged to the foundation of other walls that had been completely eroded. On clearing the refuse we recovered here three Chinese records on wood, L.E. i. 1, 2, 6, besides a rolled-up paper document, apparently complete, in Chinese, L.E. i. 3, and two Chinese paper fragments. The shape of the inscribed wooden tablets, resembling a 'wedge' cover-tablet, with a raised seal socket at the square end and with the pointed end cut off, represents a new type. [M. Maspero's preliminary notes show that these tablets had served as address labels for official letters, L.E. 1, 2 bearing dates corresponding to A.D. 266 and 267, respectively.] From this and from the presence of records on paper it is clear that the ancient *castrum* must have continued to see traffic down to approximately the same period as the Lou-lan station L.A. Apart from these records and a Chinese coin of the *Wu-chu* type the only finds from the site comprise two bronze arrow-heads, L.E. 01–2 (Pl. XXIV), and a few small stone implements including a leaf-shaped point, L.E. 05 (Pl. XXII), evidently neolithic. The latter were picked up in the immediate vicinity of the fort.

On the morning of February 16th, after taking a few photographs of the fort, intended for preliminary record only and reproduced in Figs. 160–63, I set out for the conspicuous Mesa visible to the north-east, on which Afrāz-gul on his reconnaissance had noticed remains of ancient occupation as well as some graves. It was reached after a march of about two and a half miles across ground covered with low Yārdangs and in two places with patches of *shōr*.[8] The salt crust had a soft surface as if due to deposit of no very distant date. Among the dead reeds and small tamarisk bushes met here and there between the Yārdang ridges some looked as if they had died but recently.

[8] The two Mesa symbols shown in Map No. 32. A. 3 to the SW. of L.F. should be replaced by Yārdang symbols.



164. NORTH-EASTERN PORTION OF MESA L.F., SEEN FROM WEST.
Figure standing on knoll in centre of post.



165. ROOM iii NEAR GATE OF POST ON MESA L.F.



166. GATEWAY OF POST ON TOP OF MESA L.F.



167. REMAINS OF ERODED DWELLING TO SOUTH-EAST OF CEMETERY L.H., LOP DESERT.



168. WOODEN ENCLOSURE OF GRAVE L.F. 4 OUTSIDE POST L.F., LOP DESERT.



169. COFFINS EXPOSED AT CEMETERY L.H., LOP DESERT.



170. VIEW ACROSS TOP OF MESA L.F., LOP DESERT, SHOWING GATEWAY OF POST AND CEMETERY SITE BEYOND.



171. FIRST GRAVE OPENED ON MESA L.F., LOP DESERT, WITH LOPLIK DIGGERS.



172. HEAD OF DEAD MAN FOUND IN GRAVE L.F. 4 ON MESA L.F., LOP DESERT.
Head had been covered by canvas shroud; its edge tied into small bag is seen on left. For headdress see Pl. XXIX.



173. DEAD MAN FOUND IN GRAVE L.F. 1 ON MESA L.F., LOP DESERT.
Canvas shroud lifted from head. The small basket seen above head was found outside shroud in corresponding position.

The Mesa L.F. on close approach proved an imposing ridge of reddish clay, rising, as Fig. 164 shows, very steeply to a height of over a hundred feet. Its bearing, as in the case of all Mesas in this area, was from north-east to south-west, thus differing slightly from that of the Yārdangs. On all sides, except to the south-west, the several well-marked strata from which the ridge had been carved rose in almost vertical steps, making approach to the top very difficult, and near the north-eastern end almost impossible. I soon realized that it was this easily defensible character of the ridge which accounted for its ancient occupation. To the south-west the Mesa tailed away, as usual, with a much easier slope, as seen in the plan, Pl. 12. Ascending this, I first reached a lower terrace and on this a grave, marked by remains of enclosing planks, which was subsequently cleared and found empty. On a level about fifteen feet higher we found the central portion of the ridge (Fig. 170) occupied by a small number of graves, of which some appeared to have been partially bared by wind-erosion, while others were evidently still intact. Ruined post on Mesa L.F.

This little cemetery was separated from the north-eastern extremity of the Mesa by a trench, about six feet wide, cut across where the flat top is flanked on either side by small gullies and has been reduced by erosion to a width of about fifty feet. Owing to the debris accumulated in it the original depth of this cutting remained uncertain. Beyond it, the rest of the Mesa top was crowned by a wall, five or six feet thick, roughly built, as Fig. 166 shows, of slabs of hard clay, a material corresponding to the *kisek* in use at the present day. These slabs had obviously been brought from the dried-up edge of a marsh or lagoon or else possibly quarried from the clay strata of the Mesa itself. The small stronghold thus formed had the shape of an irregular oblong and measured about 200 feet in length and about 80 across its greatest width. A little knoll in the centre, rising about fifteen feet above the foundation level of the wall, had suggested to Afrāz-gul a Stūpa, but was found to consist of natural clay. It may have been purposely spared when the ground enclosed was levelled, in order to serve as a look-out. Fort at N.E. end of Mesa top.

The wall protecting the little stronghold on the side of the gap through which the trench passed contained the gateway, about five feet wide. Its rough timber frame of Toghrak wood still stood upright, as seen in Figs. 166, 170. To the right of the entrance passage two rooms were built against the inside of the wall in the same rough fashion as the latter (see Pl. 12). Both were found full of refuse, mainly reed-straw mixed with the droppings of horses and cattle. By clearing this we recovered from room i a small wedge-shaped Kharoṣṭhī record on wood, L.F. i. 05; the Chinese document, L.F. i. 06, written on a wooden slip,[8a] as well as the fragment of a Chinese paper record, L.F. ii. 07. Among other small finds described in the list below may be mentioned the gold finger-ring, L.F. i. 02 (Pl. XXIV), with a small ruby or carnelian held in a circular bezel; three wooden writing-sticks, L.F. ii. 02. a–c (Pl. XXIX); the wooden fire-stick (female), L.F. ii. 06 (Pl. XXIX), resembling those found before at the Niya Site, L.A. station, and elsewhere; a decorated wooden pin, L.F. ii. 04 (Pl. XXIV), of the type subsequently recovered from the graves; and the leg of a kid which my men took for that of a deer.

The room iii to the left of the entrance passage still retained some of its massive roof beams in position, as seen in Figs. 165, 170. It contained nothing but an uninscribed Chinese coin of the *Wu-chu* type and a small heap of oats and oat-straw. This is a find of some antiquarian interest as it shows that ground with some kind of cultivation, perhaps as casual and intermittent as that still practised in the belts of riverine vegetation along the lower Tārīm, was not very distant when this outlying post of Lou-lan territory was still occupied. The post lay moreover in the same north-easterly direction which, as the position of L.C. and L.E. showed, the ancient Chinese route from the Lou-lan station obviously followed. This seemed a clear indication that the Mesa top, Finds at ruined post.

[8a] [M. Maspero notes in it the mention of a signal station called *Chêng-hu*.]

with its defensible quarters and distant outlook on all sides, had served as a station to keep watch over the traffic that once moved across the absolute desert beyond.

Graves outside post.

But who had been its occupants? The answer was furnished with unhoped-for clearness when the little cemetery already noticed, lying outside the walled enclosure, was explored. Three graves situated on or near the small knoll which marked the highest portion (see Pl. 12, Fig. 170) had been almost completely destroyed by wind-erosion, and only fragments of splintered wood and bones remained. It was different with the group of four graves found on lower ground to the east of that knoll. The vicinity of the fort ridge, about twenty yards off, appeared to have offered these some protection. The first grave that we opened, L.F. 2, as Fig. 171 shows, had been brought by erosion quite close to the surface and retained only the decayed body of a woman or child, reduced almost to a skeleton, without any recognizable garment or sepulchral deposits. The body lay between two long wooden boards over which tamarisk branches had been placed crosswise to make up a coffin of the simplest sort.[9] But the grave we opened next, L.F. 1, had been prepared with far more care, and its contents came to light in a state of preservation surprising even on such ground.

First well-preserved body unearthed.

A fence of closely set wooden planks rising about three feet above the present ground surface marked the narrow enclosure of the grave. After removing these and digging down to a depth of about four feet we laid bare five pieces of excellently preserved stout cow-hide forming an outer cover for the coffin. This proved to be made up of two solid Toghrak trunks, hollowed out to serve as the longer sides of the coffin, and of two short pieces for the sides at head and foot. Seven solid wooden boards, closely fitted but not joined, formed the lid of the coffin. When these had been removed by Sādiq, a young fellow, the boldest of my Loplik diggers,[10] there was revealed the body of a young-looking man with the head bare, the feet in red leather moccasins, and the rest of the body enveloped in a shroud of coarse but strongly woven woollen material (Fig. 173). It was not without a strange emotion that I looked down on a figure which, but for the parched skin and the deep-sunk eye cavities, seemed like that of a man asleep, and found myself thus suddenly brought face to face with a representative of the indigenous people who had inhabited, and no doubt had liked, this dreary Lop region in the early centuries of our era.

Racial type of dead.

That the dead belonged to the autochthone and not the Chinese race would have been adequately proved by the manner of burial alone. But a look at the dead man's head sufficed not merely to confirm this but also to show that his racial type was distinctly non-Mongolian. The face was narrow across the cheeks, the nose high and aquiline, the eyes straight. The head, so far as could be judged without measurements, for which at this spot I was not provided with instruments, was dolichocephalous. The hair on the head and that of the moustache and short beard round the chin was dark and, as far as I could see, wavy. The whole appearance of head and face suggested the *Homo Alpinus* type with which I had become familiar in the Hindukush and Pāmīrs. A big cicatrice showed over the left eye and is clearly visible in the photograph. Whether the serious wound it indicated had been the cause of the man's death or not I was not competent to determine. The skin all over the body stuck close to the bones, and the odour rising from the body was still pungent.

Dress of dead man.

The head was covered with the brown felt cap, L.F. 01. This has angular ear-flaps and is decorated on the left with five standing up plumes kept apart by a cross-piece of wood. The skin of some rodent was fastened on the cap and probably served as a crest, as in the case of the cap L.F. 04 (Pl. XXIX) recovered from grave 4. The whole body, except for the face and feet, was

[9] The photograph, Fig. 171, shows it in the foreground after excavation.

[10] The photograph, Fig. 171, shows him in the middle of the group with his face muffled as a protection against the effluvia of the graves.

enveloped in a shroud of coarse canvas, apparently of hemp, similar in weave to the specimen L.F. 03. Tied up into a small bunch on the edge of the shroud where it lay across the breast was a packet of little broken twigs, evidently intended for consumption by the dead in another life.[10a] The tied-up end of the shroud above the breast was fastened with fine stalks of hard wood, L.F. 1. 03. Underneath the shroud the body was bare except for a kind of loin-cloth made up of dark brown tassels of wool. The feet, as already stated, were stuck in short moccasins, made of red leather and quite plain.

Three baskets of neatly woven cane-like grass were found deposited within the coffin and evidently had once held food-stuffs. But these had probably been destroyed by rodents or insects. One of these baskets, L.F. 1. 04 (Pl. XXIX), remained intact and shows at its upper end ornamentation with zigzag bands. The other two, L.F. 012; 1. 01, had suffered much damage. Deposits in grave.

The grave we opened next, L.F. 3, was the one lying near the foot end of L.F. 2. This had no enclosing fence, and erosion had laid bare the hides covering a coffin similar in its rough make to that of the grave last described. In it lay the body of what I took to be a young girl, enveloped in a shroud of coarse canvas, as shown by the specimen L.F. 03. A plain felt cap covered the head. The forelocks of its dark hair were cut round the forehead after the fashion often seen on female heads of terracotta figurines from Yōtkan.[11] The face appeared to be a well-formed oval and the eyes large and straight. Two decorated pins of hard wood, L.F. 3. 01, 2 (Pl. XXIV), and the finely made bone-pin, L.F. 3. 03 (Pl. XXIV), which fastened the shroud, had probably been in use by the dead in her lifetime, and likewise the large jade bead, L.F. 3. 04 (Pl. XXIV). To the right of the head stood a small basket jug, plain but excellently woven. Grave of young girl.

The last grave examined, L.F. 4, lay close to 1, and its wooden enclosure is seen in Fig. 168 on the right. The Toghrak planks composing it did not rest on the coffin, yet correctly marked its position. The coffin was made up of two hollowed-out Toghrak trunks with cross-pieces at the two ends and boards across on the top, just as in L.F. 1; but here the latter were not contiguous and left open interspaces several inches wide. The whole was tightly covered with two cow-hides. Three or four feathered reeds found beneath them may have been meant for arrows, perhaps a provision for happy hunting-grounds beyond. Coffin of grave L.F. 4.

The body found in this grave lay about two feet deeper than that in L.F. 1. It was that of a middle-aged man completely enveloped in a coarse canvas shroud. The head, as seen in Fig. 172 after removal of the covering portion of the shroud, was turned to the left proper. It, too, was fairly well preserved and showed distinctly non-Mongolian features. The high-bridged aquiline nose is clearly seen in the photograph. Abundant dark hair appeared on the head and round the chin and mouth. The former was covered with a head-dress of yellow felt, L.F. 04 (Pl. XXIX), similar in type to L.F. 01, but more ample, and decorated, besides the plumes, with seventeen rows of red cord stitched round the cap. In addition to the rodent's skin worn as a crest, a tuft of rich feathers was inserted at the point of the crown. The whole was a good illustration of the kind of head-dress which would appeal to men who found their chief pleasure in the chase. To the right of the head was placed the neatly woven grass basket, L.F. 05 (Pl. XXIX). The edge of the shroud near the head was tied up into two small bags, one of which, as removed in the basket L.F. 05, was found to contain grains of wheat and the other small twigs. The wooden pin with decorated barrel-shaped head, L.F. 05. a (Pl. XXIV), and the short sharp-pointed stalks, also listed with this basket, served as fastenings for the shroud. Head-dress and shroud of dead, L.F. 4.

[10a] [The twigs have been recognized by Dr. A. B. Rendle as belonging to the *Ephedra* plant widely spread from Tibet to Persia. For the special interest presented by this identification, cf. note in *Add. & Corr.*]

[11] See, e.g., *Anc. Khotan*, ii. Pl. XLIII, Y. 0030; XLV, B. 001. g; Y. 0031; *Serindia*, iv. Pl. I, Yo. 009. h. 10; 0041. g; Pl. II, Yo. 1.

Type of indigenous Lou-lan people.

The contents of these graves were few but remarkably well preserved, thanks to the absolute dryness of the climate and the elevation of the site. They suffice to establish the fact that those who tenanted the small look-out post on the top of the Mesa belonged to the indigenous population of Lou-lan. What the appearance of the dead, their dress, and buried belongings disclose as to the type and civilization of this population is in striking agreement with the information which the Former Han Annals have preserved of the people of Lou-lan, as the Chinese found them on the first opening of the route through the desert.[12] There can be no doubt that the men whose figures made so life-like a reappearance from these graves belonged to a people who, like the Lopliks down to our times, lived the semi-nomadic life of herdsmen, fishermen and hunters. In spite of the traffic and trade that Chinese enterprise had brought to the jungles and marshes where they hunted, fished, and grazed their herds, they had evidently clung to their time-honoured ways and retained their distinct, if primitive, civilization. I greatly regret that the circumstances made it quite impossible to remove these mummified representatives of the old Lou-lan population. Even if we had disposed of sufficient time to improvise suitable cases from what ancient timber was at hand, no transport could have been spared to carry them with us to the land of the living. So I had to rest content with having the coffins carefully closed and the graves filled in again, putting blocks of clay on the top, to ward off as long as possible the ravages of wind-erosion.

Finds of bronze and stone objects.

The general impression left on my mind by the bodies which our 'Ketmans' had for a brief space restored to the light of the sun was strikingly confirmed by the significant juxtaposition of the bronze objects and stone implements picked up on the slope below the little stronghold and in the immediate vicinity of the Mesa (L.F. 06–10, 015–27). Among the former were fragments of two bronze mirrors, L.F. 06–7 (Pl. XXIV), undoubtedly of Chinese workmanship; several bronze rings, L.F. 09–10 (Pl. XXIV), 015, &c. The stone implements comprised, besides a jasper blade, L.F. 024, and a piece of indeterminate use, L.F. 026, the well-finished (jade?) celt, L.F. 025, with a finely ground edge. Taken in conjunction with similar indications elsewhere, this collocation suggested that the interval separating the latest Neolithic period in the Lou-lan region from the advent of the Chinese may not have been a very protracted one. On the other hand, nine Chinese copper coins, all of the *Wu-chu* type, among them several small much-clipped pieces, which were picked up close to the foot of the Mesa, make it appear very probable that the occupation of L.F. continued as long as the desert route towards Tun-huang remained in use.

Remains on Mesa L.I.

While engaged on our work at L.F. I had dispatched Afrāz-gul with a couple of men to reconnoitre an isolated Mesa which our glasses showed rising amidst low Yārdangs and *shōr* at a distance of about four miles to the north-east (Map No. 32. A. 3). The small relics, including stone implements, fragments of bronze, pottery, &c., that he had picked up there,[13] besides what was evidently the refuse from a herdsmen's station, left no doubt that this spot, too, had seen ancient occupation. Our plane-table showed that the Lou-lan site L.A., the cemetery L.C., the Chinese *castrum* L.E., the little fortified post L.F., and finally this once occupied Mesa (L.I., as I subsequently marked it), all lay along what was practically a straight line leading due north-east. It seemed a clear indication that the ancient Chinese route I was anxious to trace onwards had followed the same direction. Thus the discoveries made since leaving our base at the Lou-lan station, apart from their direct interest, had a great practical importance for me. They furnished a safe starting-point and some guidance for the difficult task still before us, that of tracing the line of that famous old 'route of the centre' through the forbidding wastes eastwards.

Direction of ancient route.

Return to L.A. base.

But to set out for it at once was a physical impossibility. The camels I had ordered to rejoin me at our Lou-lan base camp by February 17th were sure to be in need of some days' grazing at

[12] Cf. Wylie, 'Notes on the Western Regions', *J. Anthrop. Inst.*, x. p. 25; *Serindia*, I. p. 335.

[13] See in the List below, p. 289, the entries marked L.I. 01–18.

the salt springs of Altmish-bulak, before they could be made to face a succession of long and difficult marches over absolutely unknown ground. Incessant toil in the waterless desert, with constant exposure to its icy winds, had exhausted the Loplik labourers, hardy as they were and pleased with their rewards. My men, too, were badly in need of a short rest before that venture. An immediate return to our base L.A. was therefore inevitable. Coming back to the *castrum* from our successful exploration at L.E., I was able to use the remainder of daylight for clearing the slight layers of refuse near the north gate with the result already recorded.

Night passed within *castrum*.

But the same evening there broke upon us from the north-east the season's first 'Burān' or sandstorm. Raging with full fury all through the night as well as through the forenoon of the next day it rendered rest and work equally impossible. Obstructed by the ancient walls of the *castrum*, the storm developed increased violence within it, where our bivouac lay, and set up regular whirlwinds of sand. They frustrated all attempts to keep fires alight as a protection against the icy blasts and caused us to pass a miserable night in darkness that could almost be felt. The Lopliks, though accustomed to face Burāns in their riverside haunts, were much impressed by the violence of this sandstorm encountered in the open of the absolute desert, and attributed it to the wrath of the dead we had disturbed. Sādiq, the young fellow who had so bravely handled their bodies, was particularly overcome by fear. Imagination, aiding the effect of the foul air he had inhaled when opening the coffins, brought on a violent attack of vomiting which greatly frightened not only him but his comrades.

March in sandstorm.

After so trying a night we all greeted the morning with relief, though it brought only semi-darkness. No attempt could be made under such conditions to visit and explore some graves that Afrāz-gul on his first reconnaissance had noticed on the top of a Mesa about two miles off to the north-north-east, together with what he took for the remains of a much-decayed watch-tower. The examination of these remains, marked L.Q. on the map (No. 32. A. 3), had accordingly to be left for a later occasion.[14] Nor was it possible in the dense fog prevailing to take the intended additional photographs of the *castrum*. The early part of the return march to our Lou-lan base camp, in accordance with the previously settled programme, was much impeded by the atmospheric conditions. Had the sandstorm faced us, instead of sweeping at our back, the march would have been stopped altogether. As it was, we found great difficulty in keeping to the intended direction, and constant halts were called for to collect the line of straggling men. Finally I was obliged to make them hold on to a long string in order to prevent any one losing company and straying away into the sand-swept waste.

Return to base camp L.A.

It was reassuring to come upon the ancient river-bed previously referred to; and shortly after this the violence of the storm somewhat abated, so that we were able, after a five hours' trying tramp, to sight the Mesa on which stands the cemetery L.C., which had been my goal. Three further hours of hard work at that place, though the diggers were worn out and inclined to get out of hand, enabled me to complete the examination of the grave-pits. The rapidly clearing atmosphere once more enabled me to see the landmark of the big Stūpa of L.A. Guided by it, we regained our base by dusk, all of us in a condition of indescribable dirt and my troop of Lopliks wellnigh exhausted by the toils of this desert expedition.

OBJECTS FOUND AT L.E. SITE

L.E. 01. Bronze arrow-head, solid triangular, of type L.J. 01. Length 1⅛".

L.E. 02. Fr. of bronze arrow-head, of acute rhombic section. ⅜" × ⅜" × ¼". Pl. XXIV.

L.E. 03–4. Two chert blades, long, narrow; 03 light grey, 04 purple; both with median ridge. Lengths 1¾", $2\frac{7}{16}$".

L.E. 05. Jasper arrow-head, leaf-shaped; greenish-grey. Well made. Length 2¼", gr. width ⅝". Pl. XXII.

L.E. 06. Jasper point, rather unsymmetrically made. Bluish-green stone. Length 1", base $\frac{7}{16}$".

[14] See below, Chap. XX. sec. iv.

camels for any service we might need and ready to set out at once. He had duly received the order from Kara-kum, the district head-quarters, some three months before, and fortunately nothing was subsequently done to revoke it; yet the prohibition against us issued from Urumchi had reached Kara-kum, as I learned a year later. Whether the failure to act on these instructions was due to mere negligence, or to the benevolent closing of official eyes on the part of the Tungan district magistrate, luckily an acquaintance of Sir George Macartney and a well-meaning person, may be left an open question.

Survey of Kuruk-daryā.

The local knowledge and life-long desert experience of Abdurrahīm proved from the start of no less help than the excellent transport provided by his five magnificent camels, bred and reared in the Kuruk-tāgh. He had more than once visited Āltmish-bulak on his hunting expeditions after wild camels, besides the occasion in 1901 when he guided Dr. Hedin there. Thus Lāl Singh had been able without serious difficulty to carry out the main task for which I had detached him, by mapping the course of the ancient dried-up river from Ying-p'an, on the Tikenlik-Singer route (Map No. 25. c. 3), to the vicinity of the Lou-lan sites. While carrying out this survey, he covered, as recorded on Maps No. 25. D. 3; 29. A–D. 3, a marching distance of close on a hundred and fifty miles, all through waterless desert except at one point, Yaka-Yārdang-bulak, and was able to determine the approximate position of the head of the ancient Kuruk-daryā delta near his Camp 78 (Map No. 29. B, C. 3).

Lāl Singh's move to Āstin-bulak.

In accordance with my instructions, he kept a careful look-out for any ancient remains and thus succeeded in tracing four cemetery sites on the edge of the gravel Sai overlooking the ancient riverine belt. He also came upon two small 'Tatis' in the latter (Map No. 29. c. 3), showing coarse pottery debris and probably marking indigenous occupation, perhaps partly in prehistoric times.[2] Three out of the four cemetery sites which Lāl Singh's survey indicated I was subsequently able to visit and explore.[3] The route followed by him had brought the little party to within about seventeen miles of the Lou-lan station L.A. But uncertain as to whether the determination of his position on the plane-table, after a circuit of some four hundred miles from Mīrān, was sufficiently exact to permit of his steering correctly towards a particular point in the wind-eroded desert which neither he nor Abdurrahīm had visited before, he decided to turn off to the north-east and seek the spring of Āstin-bulak before venturing farther. He had been there only a day when Tokhta Ākhūn and the men in charge of my camels arrived from the south, and contact was duly established. Neither party was prepared for the meeting, and in consequence one of Abdurrahīm's camels, while straying a little from the salt spring, narrowly escaped being shot by Tokhta Ākhūn for a wild one.

Abdurrahīm's camels.

The greater portion of the ground seen by Lāl Singh on his seven marches from Ying-p'an to Āstin-bulak and again between this and L.A. had been visited already by Dr. Hedin in 1900–1,[4] and the latter's detailed record of it made me feel less regret at the surveyor's inability to give

[2] At and near these 'Tati' areas Lāl Singh's party picked up most of the miscellaneous small objects—mainly potsherds, but including also two glass beads and two stone 'blades'—which are shown in the Descriptive List below under the 'site-mark' *Lal S.*

The well-made bronze arrow-head, Lal S. 015 (Pl. XXIII), is of interest as it closely resembles others of the same type found to the NW. of L.A.; see C. xcvi. 013, 016 and one from the Niya Site (see *Ser.* iv. Pl. XXIX, N. xiv. 008) which approximately date from the first centuries of our era.

[3] See below, pp. 276 sq.; Chap. XX. sec. iii.

[4] Dr. Hedin's route of March 1900 had lain, as appears from the sheets recording his prismatic compass survey from 'Yangi-köl to the Lop Desert', approximately over the same line as that of Lāl Singh as far as the latter's Camp 75 (Map No. 29. A. 3); then again between Yaka-Yārdang-bulak, C. 76 and C. 78 (Nogustu; Map No. 29. c. 3). From the last-named point his route towards Altmish-bulak followed a somewhat more northerly line, away from the Kuruk-daryā. His routes from Altmish-bulak in 1900 and 1901 to the Lou-lan site do not diverge much from that followed by Lāl Singh between his Camps 81 and 83, L.A. (Map No. 29. D. 3).

much information about physical features beyond what his plane-table showed. Abdurrahīm's presence and that of his splendid camels, man and beasts alike inured to all hardships of the wintry desert, added greatly to the strength of our column, and this together with Lāl Singh's safe arrival was enough to reassure me as to the execution of my further plans. The reinforcement of our transport was all the more important that several of the hired animals on their return from Āstin-bulak proved unfit for further desert work. These and all but five of the remainder had to be sent back to Mīrān in order to secure that our heavy baggage should start thence for Tun-huang in good time. As regards Abdurrahīm's camels, it may serve to illustrate their stamina that the baby camel (Fig. 176) to which one of them gave birth at the Lou-lan station, probably the first living creature to see the light there for centuries, subsequently traversed with us those formidable wastes of salt and gravel on our difficult journey eastwards unharmed and almost throughout on its own legs.

Arrangements for division of party.

The evening of our reunion sufficed to settle my immediate programme. A detour to the north-west would allow me to explore the easternmost of the ancient burial-places that Lāl Singh had discovered at the foot of the Kuruk-tāgh glacis, without adding more than a day to our march to Āltmish-bulak. The wooden cases needed for the transport of our antiquarian spoils of the last days were made overnight by Naik Shamsuddīn. With his energetic application to such tasks neither fatigue nor bitter cold would ever interfere, and the necessary material was supplied by ancient timber from the ruins. Rising long before daybreak on February 18th, I was able to pack all the delicate fabrics and other antiques with the precautions necessary for the long journey before them, and to complete the multifarious arrangements for the division of our party and the move of our heavy baggage from Mīrān towards Tun-huang. All our Loplik labourers, whom the privations and exertions of these weeks had tried severely, were sent back under Ibrāhīm Bēg's guidance to Mīrān to regain the world of the living. With adequate silver to reward them for their toil and with plenty of camels to carry their belongings and ice supply, they left us in good spirits, very different from the refractory mood which they had shown after that day's work at the graves of L.F. and the subsequent sandstorm.

Move of heavy baggage from Mīrān.

It was Ibrāhīm Bēg's task to assure the punctual start of all the heavy baggage and supplies left behind at our Mīrān base, so that they might rejoin us in good time by the caravan track leading to Tun-huang. I fixed the wells of Kum-kuduk as our rendezvous at that place. I knew that the presence of Li Ssŭ-yeh, my hapless Chinese Secretary, was likely to add to the trouble involved in moving these *impedimenta*, and I also felt uneasy about the result of possible Chinese obstruction from Charkhlik. It was therefore no small relief to know that I could put full confidence in the devoted care and calm good sense of the faithful factotum who had accompanied me on three journeys. A heavy postal bag, including letters written during half the night to carry news of our latest discoveries westwards, was also entrusted to Ibrāhīm Bēg's care for safe transmission to Kāshgar.

Departure from Lou-lan site.

Our march to the north-west of L.A. took us at the start over deeply eroded ground to the ruined Stūpa which I had reached in December, 1906, on my first approach to the site (Fig. 149). It has been fully described in the account of my former explorations.[8] Numerous Chinese coins of the Wu-chu type were again found in numbers in its vicinity, besides plentiful small objects in bronze, such as the triangular arrow-heads, C. xciv. 011–13 (Pl. XXIII); a pair of tweezers, complete, C. xciv. 06 (Pl. XXIII), and small stone blades, C. xciv. 01. a–u; 07–9 (Pl. XXII), &c. Around the Stūpa and for a distance of six miles from L.A. abundance of potsherds of good quality indicated that the ground had been densely occupied during historical times. Before reaching the Stūpa we

8 Cf. *Serindia*, i. p. 394.

crossed what was undoubtedly an ancient river-bed, about ninety yards broad and twenty to twenty-five feet deep, with many dead Toghraks on its banks. It appeared, from its direction, to have been connected with the winding bed I had noted near L.C. and some distance beyond.[6]

Effects of wind-erosion.

From where the pottery debris ceased the ground became easier, being less furrowed by Yārdangs, and open depressions with comparatively flat ground facilitated progress for the camels. Here and there patches of dead reed-beds, laid quite flat, were found in these depressions. After having covered about seven and a half miles of march we crossed another winding river-bed, coming from the west and apparently divided into two or three branches. It made a short sharp bend just where we passed the main branch, and here its western bank, lying against the direction of the prevailing winds, was being breached by them in exactly the same way as the walls of the ruined towns near An-hsi and Ch'iao-tzŭ.[7] It occurred to me that the open depressions previously referred to might mark the beds of lagoons once formed by those branches of the dying Kuruk-daryā. Owing to their bottom lying twenty to twenty-five feet lower than the adjoining ground they were less exposed to the direct force of wind-erosion. Snail shells were scattered about them in abundance, and at one point near such a depression I found a couple of tamarisk-cones still showing some live branches on their tops.

March across difficult Yārdangs.

The crossing of the difficult belt of Yārdangs running at right angles to the direction of our march had much retarded the camels. We were therefore obliged to pitch camp at dusk near a narrow winding river-bed with plentiful dead Toghraks on its banks. About two miles before reaching it we had sighted far away to the west a small hillock which might mark the ruin of a Stūpa or tower, with a low bank to its right which might be taken for the remains of a wall. But the evening light on such ground is apt to be deceptive, and the search made by us in 1906 from L.B. had shown nothing to suggest the existence of such a ruin in that quarter. A diversion in that direction would have cost us a day, and this I could not now spare. Nevertheless the observation may be recorded for the notice of any future investigator of this dead land. All day the low barren range of the southernmost Kuruk-tāgh had been visible in the distance, and the landmark which a low reddish ridge afforded to Abdurrahīm's keen eyes had allowed us to steer straight for the point where we should find Lāl Singh's fourth cemetery.

Abdurrahīm's experience of Kuruk-tāgh.

I had taken the opportunity of this first march in the company of Abdurrahīm for a long talk about his observations and experiences on the many hunting expeditions which, since early youth, he had made into the Kuruk-tāgh. I found him as intelligent and communicative as he proved thereafter obliging and helpful. Brought up in the isolation of Singer, where his father, a hunter from Deghar in the Turfān basin, had first established a tiny colony, he seemed to combine the intelligence and good-natured politeness of the Turfān people with the brave self-reliant spirit of the lonely desert hunter. Lāl Singh had frequent occasion to benefit, at a later stage of our travels, by Abdurrahīm's keen topographical sense and lifelong experience of the stone and gravel wastes of the central and western Kuruk-tāgh. The detailed information he was able to communicate to me about a vast stretch of ground, all waterless desert but for a few springs, mostly salt, helped me greatly in planning the expeditions which Lāl Singh carried out in the winter and spring of 1914–15. In the course of these he explored extensive portions of the Kuruk-tāgh which had never before been surveyed or even visited, and carried his triangulation from the Lop desert to Korla.[8]

[6] The bearing of the river-bed where we crossed it near the Stūpa was ENE. The more northerly connexion conjecturally shown for it on Map No. 29. D. 3 is doubtful. Lāl Singh, from whose plane-table it has been entered, was not aware at the time of the more probable continuation traced by Afrāz-gul and myself near L.C.

[7] See *Serindia*, iii. pp. 1095 sq., 1102 sq.; Figs. 239, 240.

[8] See below, Chap. xx. sec. i.

Abdurrahīm first learns of Loulan ruins.

An area extending about 250 miles from east to west and over 120 miles across was ground in some ways as familiar to Abdurrahīm in its utter barrenness and uniform desolation, as an isolated alpine valley might be to a chamois hunter of the old days. Wherever his statements could be tested on the spot by Lāl Singh or myself, they proved invariably true and accurate. And this fact provides a special reason for recording here information, supplied by him on that first day, which has a quasi-historical interest in connexion with the remains of ancient Lou-lan. He had never before visited the portion of the Lop desert where these stand, except in March, 1900, when he had guided Dr. Hedin to Āltmish-bulak and had thence accompanied him to a point near the ruined dwellings marked by me L.B. IV, where the distinguished explorer had first come (on March 28, 1900) upon remains proving ancient occupation.[9] From there he had returned, and had thus remained without knowledge of the ruins which Dr. Hedin subsequently explored in 1901. But he had heard in his youth stories of a *kötek-shahri* or 'old town', situated in the desert south of the Kuruk-daryā, from Rustam, an aged Loplik hunter on the Tārīm. These he had communicated to Dr. Hedin when he accompanied him on his first journey to the Kuruk-daryā and Āltmish-bulak.

Story of ancient route to Tun-huang.

Abdurrahīm's statement was of some interest to me. It showed that the first discovery of the Lou-lan site was not due altogether to mere chance. It also confirmed the information I had previously received quite independently from Tokhta Ākhūn on our march from Chainut-köl to the ruined fort L.K. Tokhta Ākhūn, as straightforward and reliable as Abdurrahīm, but being a Loplik less ready to talk, told me on that occasion that in his young days he had heard from Egir-ajan, an old Abdal hunter, that a road once led from the Tārīm to Tun-huang along the southern foot of the 'Kumbal-tāgh', or more correctly Kumul-tāgh, i.e. the Kuruk-tāgh. This 'road' was supposed to have lain north of the desert with which the hunters of Abdal were to some extent familiar. But Tokhta Ākhūn could not tell how Egir-ajan had come to know about it. He, however, thought it likely that the old man had visited Tikenlik, whence local hunters were accustomed to go to the Kuruk-tāgh after wild camels. Egir-ajan had died about 1895, having been killed by fugitive Tungans after the rebellion around Hsi-ning.

Hunters' tales of 'old town'.

The close agreement between the wholly independent accounts of Abdurrahīm and Tokhta Ākhūn leaves no doubt in my mind that some vague tale about the existence of ruins in the region of ancient Lou-lan was current among hunters visiting the springs along the foot of the Kuruk-tāgh to look for wild camels, before Dr. Hedin's discovery. It seems to me more difficult to determine whether the story that an ancient road once led that way from the Tārīm to Tun-huang can be accepted as indicating the survival of some genuine old tradition about the ancient 'route of the centre', or whether it was merely an inference drawn from, or an attempt to account for, the alleged existence of an 'old town' in the desert south of the foot of the Kuruk-tāgh. That the main ruins of the Lou-lan site had been visited at one time or another by adventurous hunters in search of treasure appears to me highly probable. The Stūpas of the L.A. station show clear evidence of treasure-seekers' operations,[10] and if on the one hand it is impossible to say how soon or how long after the abandonment of the station these took place, it must be remembered on the other that traditional knowledge about 'old towns' in the desert dies hard among the people of the Tārīm basin, who have ever since ancient times taken a keen interest in buried treasure.[11]

On the morning of February 19th I let Abdurrahīm, with all the camels and baggage, proceed east-by-north with orders to pitch our camp at the point where the route previously followed by him with Lāl Singh crossed the mouth of an open Nullah descending from the foot-hills of the Kuruk-

[9] Cf. Hedin, *Central Asia and Tibet*, i. pp. 376 sqq.

[10] Cf. *Serindia*, i. pp. 389, 391.

[11] See *Ancient Khotan*, i. pp. 236, 455 sq., &c.; *Serindia*, iii. p. 1234, 1301, &c.

tāgh and known to him by the Mongol name of Ulan-tementu.[11] I myself, with Lāl Singh, Afrāz-gul and the few men who could be spared from the camel convoy, continued our former direction towards the reported cemetery site, with the intention of exploring it and thence rejoining our camp in the evening. The camels would thus be spared a considerable detour, and a day would be saved on our march to Āltmish-bulak.

Finds of potsherds, metal frs.

For about six miles from our starting-point the Yārdangs, which rose to about ten feet in height and preserved their usual direction, right across our route, proved very troublesome. This confirmed the wisdom of the arrangement above indicated, as the camels were enabled thereby to proceed straight to the intended halting-place for the night, thus keeping a bearing almost parallel to that of the wind-eroded ridges and trenches. As the latter portion of the preceding day's march had shown us no traces whatever of ancient human occupation, I was all the more interested to find, after we had covered about four miles, that fragments of well-made pottery, resembling that found around L.A., became frequent. Several bronze arrow-heads and miscellaneous metal fragments, as described in the List below, were also picked up on this ground, besides fragments of two inscribed *Wu-chu* coins. Among the former the well-made barbed arrow-head, C. xcvi. 016 (Pl. XXIII), with three sharp blades, may be specially mentioned. This type, to which one of Lāl Singh's finds, Lal S. 015 (Pl. XXIII), and one from Kum-kuduk, Kum. 01 (Pl. XXIII), also belong, differs markedly from that of the triangular bronze arrow-heads which formed part of the regular ammunition in use with Chinese crossbows of Han times, and which were recovered in such numbers both within the Lou-lan area and on the Tun-huang Limes.[12]

Debris of ruined dwelling.

At a point about seven miles distant from our last camp my attention was attracted by timber debris to the much-decayed ruin of an ancient dwelling (Fig. 167), occupying the top of a Yārdang about eight feet high. The ground covered by roughly hewn beams and posts of Toghrak wood measured about twenty-five by fifteen feet. Wind-erosion had bared the surface everywhere, except on the south, where a layer of reed-straw, probably fallen from what had been the roof, had protected some slight remains of a clay-built wall. The scanty refuse surviving here and there contained only oat-straw and horse-dung. The remains of posts, made of slender tree-trunks with gabled ends which had once probably carried the rafters of the roof, suggested the coarsely built dwelling of a cultivator or simple roadside quarters. But the pottery debris found in the vicinity was all of good quality and manifestly of approximately the same period as that common at the Lou-lan sites. Several beads of glass and stone and small bronze fragments were also among the 'Tati' remains picked up near the spot (C. xcvi. 01–5, 07–12, Pl. XXIII).

Belt of ancient cultivation.

These finds and those previously recorded some miles nearer to our camp C. 84 (or C. xcvi)[14] clearly indicate a belt of ancient occupation, approximately contemporary with that of the other Lou-lan sites. Judging from its position as shown on the map (No. 29. D. 3), it may be conjectured that this belt lay along a direct route leading from the *castrum* L.E., the true bridge-head as it were of the desert route coming from Tun-huang, to a point at the foot of the Kuruk-tāgh glacis, from which the well-defined main course of the Kuruk-daryā skirts it all the way to Ying-p'an and the present bed of the Konche-daryā. Of Ying-p'an I shall have occasion to prove farther on that its ruins mark an important station on the ancient Chinese route connecting the Lou-lan area with Korla and with the string of oases which stretch westwards along the foot of the T'ien-shan and constitute the natural northern highway of the Tārīm basin.[15] The belt just referred to lies exactly

[11] See C. 85, Map No. 29. D. 3.

[12] Cf. below, pp. 290 sq.; *Serindia*, I. pp. 358, 428 sqq.; ii. pp. 599, 604, 704, &c. See also below, pp. 346, 416, T. XXII. f. 02–3.

[14] The 'camp number' C. 84 is that taken from Lāl Singh's plane-table, C. xcvi that from Afrāz-gul's and my own.

[15] See below, Chap. XXI. sec. I.

on a straight line drawn from the *castrum* L.E. to the end of the northernmost branch of the Kuruk-daryā and to the 'Tati' area marked on it in Map No. 29. C. 3.

From that point westwards it appears to me quite certain, in view of unchanging and clearly defined physical features, that the line of the ancient high road must always have kept as close to the foot of the Kuruk-tāgh glacis as consideration for water-supply, grazing and fuel would permit: for the level Sai of gravel along the edge of the glacis would in ancient times, just as now, have offered the easiest ground for traffic. Protection was there afforded from all those troubles of flooding, shifting banks, drift-sand, &c., with which roads close to rivers are always beset under the conditions of the Tārīm basin.[16] The route leading from the Lou-lan station L.A. towards Ying-p'an could not have gained the natural highway along the edge of the Kuruk-tāgh glacis and the river-bed skirting it by a shorter line than the one running to the north-west and striking the gravel Sai near the point marked by Lāl Singh's 'Tati'. And that the route actually followed this line is made highly probable by the fact that along it there stretches, as the map shows, the series of ruined Stūpas, Buddhist shrines and residences between L.A. and L.B. which I explored in 1906.[17] (Ancient highway along Kuruk-daryā.)

The remains and the records found at L.A. leave no doubt that the ruined station at that spot was, anyhow during the closing period of the occupation of Lou-lan, the administrative centre of the territory through which the Chinese 'route of the centre' passed. There must have been adequate reasons justifying its location at this point, such as facilities for irrigation and the consequent command of agricultural resources. But whatever these considerations may have been, they could not do away with the fact that travel by the route leading first from L.E. south-westwards to the L.A. station and thence north-westwards to the nearest point at the foot of the Kuruk-tāgh glacis involved a not inconsiderable detour. It is therefore probable that the direct route between the first and the last points was also frequented to some extent, and this may help to account for the traces of ancient occupation that we encountered between Camp 84 and the edge of the glacis. (Route from L.E. to Kuruk-daryā.)

As we continued our march to the north-west from the remains of the ancient dwelling described on the preceding page the Yārdang ridges became steadily lower and flat patches of ground, obviously levelled down by wind-erosion, such as I had noticed already before reaching the ruin, became ever more frequent. The sand was growing coarser as we approached the edge of the Sai, and this increased strength of the corrosive agent evidently accounted for the greater extent of the ground over which erosion had completed its work and produced flat depressions. One of these clay-bottomed depressions, crossed at about eight and a half miles' distance from camp, showed signs of having occasionally been flooded by drainage from the hill slopes northward. Varying flood levels were marked by lines of Toghrak trunks which may have been washed down from the slopes of Yārdangs that have since completely disappeared. Here I came also upon a few specimens of those curious wind-driven balls of thorn, known as *shap*, which, apparently rootless, can keep alive on a minimum of atmospheric moisture. They may have been brought down from a higher level on the Kuruk-tāgh glacis. (Approach to foot of glacis.)

The actual foot of this glacis, marked by a gravel Sai, was reached about a mile beyond the last-named depression and close to the point where Lāl Singh's Camp 80 had stood. Above this to the north and only about two furlongs away, a few broad clay terraces of no great height emerge from the uniform gravel cover of the Sai, evidently 'witnesses' of an older ground level which had escaped being buried by the deposit of piedmont gravel. On the top of one of these, Azīz, an (Ancient burial-chamber.)

[16] We shall see farther on that the line followed by the ancient route from Ying-p'an along the western glacis of the Kuruk-tāgh to Korla, and still clearly marked by its watch-stations of Han times, offers an exact illustration of the topographical factors which, I believe, determined the route-line along the Kuruk-daryā to the east of Ying-p'an; cf. below, Chap. XXI, sec. iii.

[17] See *Serindia*, i. pp. 394–405.

intelligent Khotanlik of Lāl Singh's small party, showed me a 'house' he had noticed on his previous passage. It proved to be a kind of underground chamber cut into the hard clay, about twenty feet square and approximately orientated. Its roof was formed by closely adjoining trunks of young Toghraks resting on two roughly cut rafters of Toghrak wood. Above this roofing there was spread a kind of very coarse matting made up of bundles of a thorny scrub (now known as *yiken*) laid crosswise. This matting, again, was covered with wheat-straw and a layer, about one foot thick, of fairly hard clay.

Coffins within chamber.

Wind-erosion had carried off the clay over the eastern portion of the roofing. This allowed me to see at once that the interior, about 4 or 5 feet deep, was occupied by three coffins. All proved to be roughly made up of Toghrak trunks hollowed out and closed at their ends by cross-boards. The first one opened, near the north side of the chamber, was found to be filled only with solid clay. Was this a coffin, ready stored for burial but never used, which fine loess dust blown in by the winds had ultimately filled completely? Or had the body it once held completely disintegrated under the influence of moisture? There was nothing to give a definite answer. In the next coffin, in the middle, were discovered decayed human bones and a mass of very brittle rags, L.H. i. 01, difficult to open but clearly containing numerous fragments of silk, evidently from worn-out garments. The third coffin near the southern side of the chamber was not opened by us for fear of losing more time than we could afford. It was for the greater part embedded in a mass of clay, which may have accumulated from fine dust blown into the chamber and subsequently hardened under the influence of moisture.

Evidence of burials.

Scanty as were the finds made here, this rough burial-chamber itself afforded instructive evidence. Its construction, entirely different from that of the graves in which the indigenous Lou-lan people of L.F. had been laid to rest, suggested a method of burial that would account for miscellaneous remains such as those I had found thrown together in the grave-pits of L.C. The presence of silk rags, from worn-out clothes, distinctly supported this inference. Finally the presence of wheat-straw afforded a clear indication that cultivation had been carried on at some point not very distant from the burial-place. It was moreover safe to conclude that the position of the latter had been chosen with a view to securing the protection of the bodies both from moisture and from wind-erosion.

Cemetery L.H.

These inferences were confirmed when I proceeded to examine the small cemetery, L.H., reported by Lāl Singh and situated about one mile away to the north-west.[14] It was reached about 2 p.m., and, in view of the tramp still before us and the risk of missing camp in the dark if we were belated, our examination had to be hurried. In a shallow dip of the gently sloping Sai I found a row of four wooden coffins placed close together from north to south and half-exposed on the gravel-covered surface (Fig. 169). A single Toghrak post standing upright still supported on its gabled end a big beam, on which a roof similar to that observed at the burial-place farther south had no doubt once rested. Wind-erosion had carried off the roof as well as the wall on which it is likely to have rested, leaving only loose remains of much-splintered and shrivelled timber. The coffins, too, had all been injured to a greater or lesser extent by the corroding force of wind and sand. A big coffin, at the southern end of the row, was found completely broken and its contents dispersed. It was made of massive Toghrak planks joined into an oblong; in the other coffins, hollowed out Toghrak trunks served for the sides. None of them retained their covers.

Contents of coffins at L.H.

The much-decayed northernmost coffin measured fully nine feet in length and was evidently intended to hold other deposits besides the body. Such bones as survived were found wrapped in

[14] In Map No. 29. D. 3 the 'site-mark' *L.H.* has by mistake been shown against the site of the ruined dwelling above mentioned, instead of against the entry 'Ancient cemetery'.

tightly wound rags of miscellaneous silk and wool fabrics, exactly after the fashion so fully illustrated by the remains of the L.C. grave-pits. Near the head-end of the coffin were found the elliptical food-tray, L.H. 013 (Pl. XXVIII), with remains of another, L.H. 028 (Pl. XXVI). At the head of the next coffin, too, there had survived a wooden food-tray, L.H. 02 (Pl. XXVII), of circular shape on the top and supported by short legs showing the same conventional lion-leg pattern as the legs of cupboards from the Niya and Lou-lan sites.[19] Shreds of miscellaneous fabrics, largely silk, evidently from much-worn garments, enveloped what remained of the body. By its side there were found two wooden cups, L.H. 01, 012 (Pl. XXVII, XXIX), and five wooden arrows, L.H. 023-7 (Pl. XXV), obviously meant only as a sepulchral deposit, since the shafts though fitted with feathers had no heads, being merely trimmed smoothly to a point. The third coffin was a small one and lay embedded in drift-sand and gravel. Here a coarse woollen shroud, which had once apparently enveloped the whole body, had helped to preserve an abundance of silken and woollen rags, which had served for the tight wrapping of the limbs. A finely woven woollen shoe, L.H. 04 (Pl. XLII, LXXXV), decorated in excellently designed tapestry work, was a particularly interesting find made here. The several bands across the toe portion show heraldic lions and flying birds in alternating colours, disposed among geometrical motifs. The whole is of extremely good workmanship, and in design and technique closely recalls the fine woven slipper L.B. IV. ii. 0016, brought to light in 1906 from a residence at the Lou-lan site.[20]

Textile finds at L.H.

The style of decoration on this shoe and on the fragment of another, L.H. 015, leaves it open to us to assume local origin, as in the case of the tapestry pieces from L.C. But there can be no doubt that all the remains of silk fabrics were imports from China. Most of them are coloured silks of plain weave (L.H. 06, 8, 10, 14, 16, 17, 20); but in addition we have in L.H. 09 the fragment of a figured silk, in 'warp-rib' weave and showing a cloud-scroll pattern. There are fragments also of a crimson silk damask, L.H. 011, with a geometrical pattern of the 'spot' type composed mainly of lozenges.

Period of burials.

Though our examination of this small cemetery yielded no exactly datable objects, yet the general character of the graves and the nature of the textiles suffice to prove that they belong to the same period of Chinese control over Lou-lan as the remains gathered into the grave-pits of L.C. From the position chosen it may be safely concluded that the intention was to place the habitation of the dead on ground which by its higher level was protected from inundation or subsoil moisture and by its gravel cover less exposed to early attack by wind-erosion. The condition to which the coffins, &c., were here reduced shows how thoroughly even on such apparently safe ground the wind was able to assert its destructive force in the course of sixteen centuries or more. Lower down, on the sand-swept expanse of alluvial clay, the work of destruction would necessarily have proceeded much faster. This helps to explain how it came about that remains of many similarly eroded coffins, &c., were awaiting collection and reburial by pious hands even at a time when this area of ancient Lou-lan was still partially occupied, and when Chinese traffic was still proceeding by the desert route eastwards.

March to camp in the dark.

The exploration of the two burial-places had delayed our start for camp till late in the afternoon. Darkness overtook us while we were marching towards it along the foot of a line of low reddish ridges showing extreme disintegration. The guidance of the camels' footprints on the track previously followed by Lāl Singh now failed us, and we had to make our way by what light and direction the stars of a dust-laden sky afforded. There was uncertainty, too, to which point of the shallow Nullah intended for the night's rest Abdurrahīm might have guided our convoy,

[19] See N. xxvi. 01 (Pl. XV) and *Serindia*, iv. Pl. XLVII, L.B. III. 1.

[20] See *Serindia*, i. p. 401; iv. Pl. XXXVII.

It was consequently a relief when, towards 7 p.m., we heard our united shouts answered in the distance. It was Abdurrahīm, who with unfailing forethought had left camp to seek for us. Notwithstanding all the care taken to keep our little party together, one of the men lagged behind and lost us in the dark. So, after Abdurrahīm had safely guided us to camp, a search-party had to be sent out. It failed to discover the hapless Khotanlik. But as by chance he was carrying Lāl Singh's fur coat, he had some protection from the bitter cold of the night, and next morning he was able to rejoin us, not much the worse for the exposure.

March across decomposed ridges.

Our march next day to the north-east led first across a series of shallow flood-beds with scanty patches of thorny scrub. After about two and a half miles we reached a deep-cut torrent bed descending from the Ulun-tementu hills far away to the north (Map No. 29. D. 2). It looked as if it had not held water for a long time past; but its steep stony slopes made it difficult for the camels to cross and necessitated a detour. The ascent of a small cross spur, with rocky ledges cropping out in lines, brought us to the decayed *obo* or cairn marked on the map. Here we struck what evidently is the track regularly followed by the hunters of wild camels when proceeding to Āltmish-bulak, as shown by numerous little stone heaps and other marks that we noticed farther on. It led first over gentle slopes of decomposed rock, and then across a plateau covered with a succession of worn-down rock ledges. Finally, from the top of a transverse ridge rising over a hundred feet above the general plateau level, we sighted the little oasis of Āltmish-bulak sheltering by the western edge of a wide water-worn depression.

Arrival at Altmish-bulak.

We reached it after a march of over eighteen miles, and all greeted with joy its modest expanse of luxuriant reeds and tamarisks (Fig. 176). There was an ample sheet of good ice at each of the four main springs and abundance of fuel to melt it with. The water of the westernmost spring proved just drinkable for the camels and saved the men the trouble of melting ice for them in such quantities as would have been needed to slake their thirst of weeks. So contentment was general and adequate rest assured for men and beasts during the few days' halt, before we set out to reach the lifeless shores of the ancient sea and to cross its dried-up bed.

OBJECTS FOUND ON ERODED GROUND NW. OF L.A. (C. xciv)

C. xciv. 01. a–u. Twenty stone frs., comprising eighteen 'blades', long, narrow; and frs. of two cores from which similar flakes have been split. Dark grey, green, and purplish stone. Gr. length (blades) *a* 2 1/16".

C. xciv. 02. Fr. of glass, translucent, champagne-coloured, cut. 5/16" × 5/16" × 1/8".

C. xciv. 04. Carnelian bead, round, red. Diam. 3/8", h. 1/4". Pl. XXIII.

C. xciv. 05. Pottery handle, circular with adjacent fr. of body of vessel. Very coarse clay, badly weathered. 1 3/8" × 1 1/4" × 1 3/8". Pl. XXIII.

C. xciv. 06. Pair of bronze tweezers; complete, good condition; cf. Kan. III. 0164. Length 2 3/8", width near grip 1/4", width at loop 1/8". Pl. XXIII.

C. xciv. 07–9. Three stone 'blades', long narrow. 07 pink sard, curved downward at rounded point; bulb of percussion at butt. *08*, *09* (frs.) grey. Gr. length (*07*) 2 3/8". Pl. XXII.

C. xciv. 010. Bronze finger-ring, decorated with double row of punched dots. Diam. 3/4", width *c.* 1/8". Pl. XXIII.

C. xciv. 011–13. Three bronze arrow-heads of type L.J. 01; triangular in section, with hexagonal bases. Part of iron tang remaining in *011* and *013*; *012* has point ground off. *011* and *013* corroded; *012* in good condition. Gr. length (*013*) 1 1/4". Pl. XXIII.

C. xciv. 014. Bronze ring and ferrule, in one piece. Fine hard green patina in patches. Length 1 3/8", diam. of ring 11/16". Pl. XXIII.

C. xciv. 015. Stone 'blade', long, narrow, black; broken in two. Length of whole 1 3/8".

OBJECTS FOUND BY LAL SINGH ON MARCH ALONG KURUK-DARYA, BETWEEN CAMPS 77–80

Lal S. 01. Fr. of pink stone. 2" × 3/4" × 1/4".

Lal S. 02. Fr. of bronze, irregular. 1" × 1" × 1/8".

Lal S. 03. Hard paste ball, dark, similar to L.K. 047, &c. Diam. 5/16".

Lal S. 04. Glass bead, ovoid, dark blue, translucent. Length 1/4", gr. diam. 5/16".

Lal S. 05. Glass bead, tubular, opaque, pale yellow. Length 1/4", diam. 1/8".

Lal S. 06. Fr. of pottery, coarse, gritty, pink. Gr. M. $3\frac{1}{4}$".

Lal S. 07. Fr. of vegetable fibre (?) rope. Two strands, twisted. Very fine fibre. Length $2\frac{1}{4}$", diam. $\frac{1}{8}$".

Lal S. 08. Fr. of pottery, coarse, black, gritty. Gr. M. $2\frac{1}{4}$".

Lal S. 09. Fr. of pottery, fine grey, ribbed on exterior. Gr. M. $2\frac{3}{8}$".

Lal S. 010–11. Two frs. of pottery: smooth red, blackish-grey on each face. Gr. M. 2".

Lal S. 012. Fr. of pottery, black, gritty, as Lal S. 08. Gr. M. $1\frac{1}{4}$".

Lal. S. 013–14. Two stone 'blades', long, narrow; greenish-grey and dove colour. *014* is fr. only. Gr. length (*013*) $1\frac{5}{16}$".

Lal S. 015. Bronze arrow-head; cast, with three sharp straight-edged blades projecting from central tapering ferrule, which is pierced with large opening in each space between blades, perhaps for securing of shaft. Blades thin and barbed (one barb broken off). Good condition. Very skilful casting. Cf. Kum. 01; C. xcvi. 013, 016; and *Ser.*, iv. Pl. XXIX, N. xiv. 008. Length $1\frac{5}{16}$", gr. width $\frac{1}{2}$". Pl. XXIII.

Lal S. 016. Fr. of pottery vessel, showing part of flat base and expanding side; no base-ring. Grey, fairly clean clay. Gr. M. $4\frac{3}{8}$".

Lal S. 017–18. Two frs. of pottery: coarse, reddish-grey and grey. Gr. M. $2\frac{1}{4}$".

Lal S. 019–21. Three frs. of slag. Gr. M. (019) $1\frac{1}{8}$".

Lal S. 022–4. Three frs. of pottery, coarse, grey, full of white grit. Gr. M. (*023*) $3\frac{1}{8}$".

OBJECTS FOUND ON ERODED GROUND TO N.W. OF C. 84 (C. XCVI)

C. xcvi. 01 (7 m. NW. of). Fr. of pottery, wheel-thrown; thick, common, red-grey on faces, orn. outside with incised lines and row of four punched rings. $2\frac{1}{4}$" × $1\frac{3}{4}$" × $\frac{1}{2}$". Pl. XXIII.

C. xcvi. 02 (7 m. NW. of). Fr. of pottery: rough red, eroded. $1\frac{1}{4}$" × $1\frac{1}{4}$" × $\frac{1}{2}$".

C. xcvi. 03 (7 m. NW. of). Elliptical bronze loop, with stem attached to centre of one long side. Ellipse $1\frac{3}{8}$" × $1\frac{1}{4}$", stem $\frac{1}{2}$". Pl. XXIII.

C. xcvi. 04 (7 m. NW. of). Fr. of bronze plate; hole drilled at one end. $\frac{3}{4}$" × $\frac{1}{2}$" × $\frac{1}{16}$". Pl. XXIII.

C. xcvi. 05 (7 m NW. of). Glass bead; pale green, translucent, *amalaka* shape. H. $\frac{1}{4}$", diam. $\frac{7}{16}$". Pl. XXIII.

C. xcvi. 07. Fr. of bronze plate, with part of pattern in low relief. 1" × $\frac{3}{4}$" × $\frac{1}{32}$".

C. xcvi. 08. Glass bead, thick, tubular; marbled yellow and dark green; green semi-translucent, yellow opaque. Length $\frac{1}{2}$", diam. $\frac{3}{8}$". Pl. XXIII.

C. xcvi. 09. Shell bead, tubular. $\frac{1}{4}$" × $\frac{1}{4}$". Pl. XXIII.

C. xcvi. 010. Glass bead, blue, translucent; tubular. $\frac{5}{32}$" × $\frac{3}{16}$". Pl. XXIII.

C. xcvi. 011–12. Two agate beads, spherical, orange-red. *c.* $\frac{1}{4}$" diam. Pl. XXIII.

C. xcvi. 013. Fr. of bronze arrow-head, as C. xcvi. 016 (*q.v.*); much corroded. Length $1\frac{3}{16}$". Pl. XXIII.

C. xcvi. 014. Fr. of bronze arrow-head, with three flat sides slightly tapering and brought to sudden rounded point. Sq. hole up middle. Corroded. Length $\frac{15}{16}$", gr. width $\frac{1}{4}$". Pl. XXIII.

C. xcvi. 015. Iron stud, broad-headed, much corroded. Length $1\frac{3}{16}$", head $\frac{1}{2}$" sq. Pl. XXIII.

C. xcvi. 016. Bronze arrow-head, of type Lal S. 015, Kum. 01, &c., *q.v.* for fuller descr. Three sharp prominent blades about hollow ferrule; triangular depressions between blades, but no holes. Remains of tang in ferrule (?). Much cracked and corroded. For similar (broken) fr., see also C. xcvi. 013. Length $1\frac{7}{16}$", gr. width $\frac{11}{16}$". Pl. XXIII.

C. xcvi. 017. Fr. of bronze wire, with moulded square billet at one end. Other end broken. Prob. part of bangle. Length $1\frac{1}{2}$", gr. width $\frac{1}{8}$". Pl. XXIII.

OBJECTS EXCAVATED AT SOUTHERN BURIAL-PLACE OF L.H. SITE

L.H. i. 01. Mass of silk and canvas rags, similar to L.C. 09. Very brittle and dirty. Gr. fr. (silk, apparently part of garment). 1' 5" × 1' 1".

OBJECTS EXCAVATED AT NORTHERN BURIAL-PLACE OF L.H. SITE

L.H. 01. Wooden cup or dipper, without foot. Cut, not turned, in one piece with small ring-handle flattened on top. Marks of adze on outside and chisel marks inside. Well preserved. Diam. $4\frac{1}{2}$", h. 3". Pl. XXIX.

L.H. 02. Three-legged wooden food-tray, with circular top. One leg missing. Upper surface of top has raised edge, $\frac{5}{16}$" high and $\frac{3}{8}$" broad, cut in the solid. Under-surface has three projecting ribs, running from centre as strengthening pieces, and drilled through near edge with holes to receive circular tenons of legs. Latter of conventional lion-leg pattern, as N. xxvi. 01 (Pl. XV) and *Ser.* iv. Pl. XLVII, L.B. III. Warped, but otherwise in good condition. Diam. of top $11\frac{1}{4}$", thickness 1", length of leg $6\frac{3}{4}$". Pl. XXVII.

L.H. 03. Wooden box; elliptical. Bottom in one piece, with 'check' or rebate round upper edge to receive sides.

These are formed of one piece, bent to shape and sewn at the overlap with cane. Wooden pegs driven in askew from below secure bottom to sides.

On sides is scratched pattern of large rectangles crossed by double-line diagonals. Underside of bottom scored by knife cuts. Sides broken at upper edge, and split. Length 7¾", width 3½", height 2⅝". Pl. XXIX.

L.H. 04. Woollen tapestry shoe, made to shape on a last and finely woven. Back and sides are plain buff, with a band of darker colour running centrally through it, and splitting into thin lines towards the toe but finishing before toe is reached. Buff ground of sides continues round front as a narrow band immediately above sole. Upper edge neatly worked over thick cord.

Space on top of toes worked in buff and crimson, in bands of interchange. On upper band is flying bird, each side, and in middle five pairs of heraldic lions on buff and crimson alternately, in counterchange. Below is band of flying birds, crimson on buff; and below again a band of buff trellis on crimson. Between first and second bands narrow line of crimson runs from each side and terminates near centre in two bright green eyes.

Weft of upper, very fine wool; warp perished. Lining of coarse canvas and sole of finely plaited string, the warp in each case being of vegetable fibre, prob. hemp, and body perished. Extremely good work. 9¼" × 3⅜". For technique and design, cf. *Ser.* iv. Pl. XXXVII, L.B. IV. ii. 0016. Pl. XLII, LXXXVIII.

L.H. 05. Fr. of iron bar, flat, with indications of copper attachments. Heavily corroded and earth-encrusted. 4¾" × 1⅛".

L.H. 06. Mass of silk rags in buff, green, and blue; plain weave. (In mass) 8" × 5½" × 2".

L.H. 07. Fr. of woollen pile carpet; pile crimson, buff, and pink, occurs about every tenth shoot of weft, but has almost completely perished leaving canvas ground. 8" × 5".

L.H. 08. Silk fabric frs.: plain, light green, much perished. Length *c.* 7".

L.H. 09. Fr. of figured silk, perished. Colours now buff and blue. Cloud scroll pattern, indistinct. Warp-rib weave. 6" × 3½".

L.H. 010. Silk fabric, plain, green (discoloured); well woven. 4½" × 5".

L.H. 011. Fr. of silk damask, faded crimson, perished and broken into small pieces. Spot pattern, indistinguishable, but a large lozenge, with interlaced angles on short diagonal, forms important part; alternate patterns composed of small scrolls are also used. Average size of frs. *c.* 1½" × 1".

L.H. 012. Wooden cup, round, handleless, sides drawing in to small circular base. Roughly cut, fair condition. H. 3¾", diam. of mouth *c.* 3½". Pl. XXVII.

L.H. 013. Wooden food-tray, four-legged (one leg missing). Shallow elliptical tray, with four sq. projections on underside, cut in one piece with it and socketed to take tenons of legs. These are of waisted cylinder type—the upper part of the cylinder shorter than the lower and roughly quadrilateral—and are secured in sockets by wooden pins driven right through socket and tenon. Tray split, roughened on inside and scored with knife-cuts. Length 1' 5", gr. width 10⅝", h. 6". Pl. XXVIII.

L.H. 014. Broken frs. of silk, plain buff. Brittle. Gr. M. 6".

L.H. 015. Fr. of woven shoe upper: fine work resembling L.H. 04 (*q.v.*). Crimson and buff. Perished. Gr. M. 7".

L.H. 016. Mass of silk frs., plain buff. Perished.

L.H. 017. Mass of silk frs., plain, light blue. Perished.

L.H. 018. Frs. of vegetable fibre fabric, perhaps from shoe. Woven with double weft, the alternate pairs of weft threads twisted respectively to R. and L. and giving effect on surface of rows of plait. Brittle. Gr. M. *c.* ⅞" × ½".

L.H. 019. Frs. of grass fabric, like the preceding but coarser. Caked with sand, brittle. Gr. M. 1" × ½".

L.H. 020. Fr. of silk, fine plain weave, reddish-buff. Perished. *C.* 4½" × 2¼".

L.H. 023–7. Five wooden arrows; wooden shafts with feathers and binding, but no heads. Instead, stick is simply trimmed very smoothly to point. *023, 024* alone complete; others broken off before point.

Feathers remain on all, though worn down to stumps on 027. They are tied on in bunches round shaft, and cut short at length of about 5", forming short stiff 'brush' round it. Two bunches (or traces of two) remain on all except 025, one covering end of shaft, and the other about 6" lower down. Binding is of gut, with red woollen string sometimes on top.

Shafts of 023 and 026 also orn. with incised spiral lines (three on each), running down from feathered end (on 023 complete) to 5½" from point, where are marks as of binding. Spiral lines are further 'toothed' on L. side by series of small incised dashes, cut at right angles to direction of shaft; cf. ornamentation of wooden pins L.F. ii. 04, &c. (Pl. XXIV).

025 has piece of deerskin (?) tied round shaft 3" below base of topmost feather bunch, and from this gut runs spirally down shaft towards point (broken off).

Lengths: *023* and *024* (complete) 29"; 025, 22"; 026, 14½"; 027, 20¼"; diams. (*025*) $\frac{5}{16}$" to (*023*) $\frac{7}{16}$". Pl. XXV.

L.H. 028–9. Two carved wooden legs of food-trays; lion-shaped as N. XXVI. 01 (Pl. XV), but without disc. Deep semicircular depression above hock.

Not a pair, 029 being larger than 028, and having two grooves along abacus, and oblong bevelled projection at back of lower leg. Oblong tenon at top of each. 028 well made. Good condition. *028*, 4¼" × 1½" × ⅞"; *029*, 5" × 1$\frac{13}{16}$" × ⅞". Pl. XXVI.

L.H. 030. Carved wooden leg of food-tray; in form of waisted cylinder, roughly cut, with projecting tenon at top. H. 3" (with tenon 3¾"), gr. diam. 2¼".

L.H. 031. Pottery handle, ear-shaped, broken off vessel. Red, rather fine clay, with yellowish slip (?). H. 3", gr. projection 1⅝". Pl. XXVI.

CHAPTER VIII

THE SEARCH FOR THE ANCIENT CHINESE HIGH ROAD

Section I.—TO THE EASTERNMOST OUTPOST OF LOU-LAN

Halt at Altmish-bulak.

The halt of four days, from the 21st to the 24th of February, at Āltmish-bulak, after the fatigues and privations already undergone by men and beasts in the desert, was a much-needed and very helpful preparation for the difficult explorations immediately before us. The abundant grazing on the reed-beds of the little oasis, uninviting as it might have appeared in its wintry dryness, was a great boon for the camels, which had felt the prolonged want of food even more than the lack of water. On their powers of endurance, I knew, we should have mainly to depend, if we were to extend our surveys in the waterless desert sufficiently far to complete the tasks I had in view, with a reasonable margin of safety for us all. The camels were happily grazing and our men free to attend to much-needed repairs, adjustment of saddles and loads, &c.; while Lāl Singh was occupied with the record of his previous mapping preliminary for fresh surveys, &c., and I myself was busy with arrears of writing work and the careful preparation of our future plans.

Position of Altmish-bulak.

There was nothing to distract my attention from these tasks in the surroundings offered by Āltmish-bulak, delightful as this small patch of vegetation seemed to us men, too, after the dead world we had toiled in. The little oasis, only about a mile and a half across where widest, is situated near the point where an utterly barren valley debouches from the southernmost Kuruk-tāgh range, and lies on the most direct route between the ancient sites of Lou-lan and the Turfān basin. Though it may therefore have seen occasional traffic when those sites were occupied, yet no vestige of antiquity could be traced. Nor did the physical features, either of the small area where a fine sandy soil supports desert vegetation, or of the adjoining waste of decomposed rocky ridges, gravel, or stony 'Sai', offer special interest. They had moreover been fully described already by Dr. Hedin.[1]

Range north of Altmish-bulak.

The atmosphere, with its dust haze raised by light north-easterly winds, betokened the approach of spring, though a minimum temperature of 21 degrees Fahr. below freezing-point was still registered during our stay. This, of course, precluded any chance of our obtaining a sight of the K'un-lun range to the south of the desert, and so securing a connecting link for the triangulation of the Kuruk-tāgh that I planned to carry out during the following winter. But on the last day of our stay, February 24th, the air cleared sufficiently to allow a view of a considerable portion of the utterly barren range to the north and north-east. Taking advantage of this chance for plane-table work, Lāl Singh climbed a hill due north, which subsequently served as a triangulation station and is marked with the height 3,960 (actually 4,247) feet on the map.[2] The view thence northward extended to the next much-broken hill range from which the drainage bed of Āltmish-bulak descends, and gave him a first glimpse of that region of much-decayed barren chains, with wide waterless valleys between them, in which so much of his work during the next winter was to lie.

On the same day our practical preparations were completed: our ice supply was replenished

[1] See Hedin, *Central Asia*, II. pp. 74 sq., 222 sq.

[2] For the correction of about 287 feet to be applied to all triangulated heights of the Kuruk-tāgh in Maps Nos. 25, 29, cf. Major Mason's note in *Memoir on Maps*, p. 112.

Preparation for survey tasks.

and a carefully arranged store of fuel was prepared. Out of the twenty camels available for my own party, which included Afrāz-gul and Shamsuddin as well as Tokhta Ākhūn and a younger Lop hunter, eight were to carry ice, four fuel, and the rest what indispensable baggage we had brought and the provisions which were to last us to Tun-huang. For the corresponding needs of Lāl Singh and his three men, Abdurrahīm's five sturdy camels provided reliable transport.

The task allotted to Lāl Singh was to survey the north and north-east shores of the great salt-encrusted basin which represents the fullest extension of the ancient Lop sea, together with the barren hill ranges of the Kuruk-tāgh overlooking its shores on the east. His task was somewhat lightened by the fact that for the first two marches he could count upon finding ice and a little grazing at the salt springs of Yetim-bulak and Kaurūk-bulak (Map No. 32. A. 2, 3), the last springs to the east known to Abdurrahīm. After carrying out his survey he was to meet me at Kum-kuduk, one of the wells on the caravan route leading through the desert from Tun-huang to Mīrān (Map No. 32. D. 4).

Planned search for ancient 'route of centre'.

The plan I had long kept before me and which the time had now come to carry out was to search for the ancient Chinese trade route towards Tun-huang, the *Wei lio's* 'route of the centre',[2] from the point where it left the edge of the once inhabited Lou-lan area. Thence we should endeavour to trace it over whatever ground it might have crossed, right through to where it probably struck the line still followed by the caravan track leading from Tun-huang and the western end of its ancient Limes to the southern shore of the Lop sea and thus on to Mīrān and Charkhlik. The combined geographical and historical interest of this task appealed to me greatly, and the knowledge of the serious difficulties and even risks attending its execution could in no way detract from its fascination.

Difficulties and risks of task.

The discoveries attending the successful search made to the north-east of the Lou-lan station had supplied me with what promised to be a safe starting-point for our quest of the desert route, abandoned though it had been for close on sixteen centuries. But the foretaste then gained of the ground ahead made it also certain that we could not hope for water, nor, over most of it, for fuel to melt our ice with, before striking the Tun-huang caravan track in the vicinity of Kum-kuduk. It was a matter of some ten days' hard marching, so far as our former surveys enabled us to calculate the distance. There was a limit to the endurance of our brave camels, and with the heavy loads of ice, fuel, and provisions that had to be carried for the sake of safety, I could not expect the animals, already severely tried by the preceding weeks' work, to hold out for more than ten or twelve days without grazing or water. It was impossible to foresee what physical obstacles might be encountered and might delay us in this inhospitable wilderness, now more barren, perhaps, by reason of the total absence of water, than any similarly large area of our globe.

Scant hope of guiding vestiges.

There were other disquieting aspects presented by the problem of hitting on the exact line of the ancient route and of tracing it through on ground which long before the dawn of historical times had ceased to offer any possibility of human occupation. Few, if any, vestiges of human passage and activity could have survived the destructive force of wind-erosion. There would not be time to make careful search over extensive stretches for any relics left behind by the traffic which had once passed through this region. The indications preserved by our Chinese sources as to the line followed by the ancient route were far too few and vague to offer definite guidance; though once the route line was traced, there might be hope of locating the few points they mention along it. Accordingly, in spite of all the care I had devoted to the study of the problem, I could not help realizing that our success depended largely, if not mainly, on good fortune.

[2] See *Serindia*, i. pp. 418 sq.; ii. pp. 555 sqq., for an analysis of the Chinese notice of this route and the main results previously recorded of the search.

We left the shelter of the little oasis on the morning of February 25th under a sky more than usually hazy, and after a night during which the temperature fell only to 28° Fahr. While Lāl Singh under Abdurrahīm's guidance set out eastwards to Yetim-bulak, I myself steered approximately south-south-east towards a point near which, judging from our previous mapping, the ancient post L.F. was to be looked for. Having reached this, I should look out for indications as to the line beyond it that the ancient Chinese route might have followed. We first skirted the western edge of the wide shallow valley that holds the flood-beds coming from Āltmish-bulak, and descended for about four and a half miles across almost completely decomposed rocky ledges. Then after proceeding for some two miles down a well-marked watercourse, dry but with some scrub in it, we reached a big bed cut into the gently sloping glacis of gravel and fully half a mile across. The tamarisk drift-wood, of which quantities were found here, had evidently been brought down by occasional spates from the Kuruk-tāgh. We next struck a smaller and more easterly flood-bed, and after having covered close on ten miles from camp reached the foot of the glacis after descending about 350 feet by aneroid.

Descent by dry flood-beds.

Immediately beyond the foot of the glacis we crossed a narrow lagoon-like depression. It showed a surface of salt-encrusted clay cracked into big cakes, and in one place still held a small pool of briny water. There could be no doubt that this depression was flooded from the torrent-beds we had left behind, on the rare occasions when rain falls on the outermost ranges of the Kuruk-tāgh.[4] Afrāz-gul's survey of 1914 subsequently showed that it extends farther to the south-west and there widens. Living scrub had ceased after we left the easterly flood-bed. But when we had crossed this narrow depression and passed through a line of steep clay Mesas, fantastically eroded and up to sixty feet in height, we came upon a second, somewhat wider, depression encrusted with clayey *shōr* and having a thin line of live 'Kaurük' scrub along its edge. This evidently marked the farthest limit to which moisture had ever been carried in recent times by floods from the Kuruk-tāgh.

Depression at foot of glacis.

Having left this depression behind and covered about eleven and a half miles from Āltmish-bulak, we entered ground (Map No. 32. A. 3) where a succession of physical difficulties seriously impeded the camels' progress and soon frustrated my hope of making this first of our marches a long one. First, for about two miles, we had to make our way right across closely packed lines of Yārdang ridges, up to fifteen feet in height. Their direction was, as usual, from ENE. to WSW., and this alone would have sufficed to make them an awkward obstacle, as our route lay at right angles to it. But it was a novel and very trying experience to find them coated throughout with a whitish crust of hard salt-permeated clay which severely affected the camels' feet.

Trying obstacles encountered.

These strange Yārdangs showed throughout fairly gentle rounded slopes, such as the action of water might produce on clay carved out by wind-erosion. It has therefore occurred to me that these ridges, originally, no doubt, wind-eroded, owed both the modification of their slopes and their heavy salt-incrustation to the vicinity of the depression farther north, which at an earlier period probably held water more or less permanently and to a height sufficient at times to flood the belt of these Yārdangs. Their colour and shape naturally brought to my mind the 'White Dragon Mounds' referred to in the Former Han Annals and the *Wei lio's* account of the Lou-lan route.[5] Evidently this reference could not apply to the belt just described; for this was far away from any possible line that the ancient route I was anxious to trace could have followed. But it was no

Belt of salt-encrusted Yārdangs.

[4] Dr. Hedin, too, on his march in 1901 from Āstin-bulak towards the Lou-lan site, observed along the first portion of his route 'distinct signs of running water, showing that the rain-water does sometimes get down as far as this'; cf. *Central Asia*, ii. p. 233.

[5] Cf. *Serindia*, i. pp. 340 sq., 418 sq.; Chavannes, *T'oung-pao*, 1905, pp. 529 sq.

surprise to me when subsequently following that ancient route beyond Camp C. ci I encountered a belt of exactly corresponding salt-coated Yārdangs and, as we shall see farther on, just where conclusive antiquarian evidence allows us safely to identify them with the 'White Dragon Mounds' of the Chinese itinerary.*

Wall-like Mesas encountered.

The Yārdangs gradually decreased in height, and as they became more and more clear of salt-incrustation resumed their steep wind-carved slopes. It was significant that where this change had become marked, at a point about fourteen and a half miles' marching distance, we met with the first mollusc (Limnaea) shells and, as a further proof of fresh water having once been present, with dead tamarisk wood on low Yārdangs. The furrows or trenches between these now showed coarse sand at the bottom. We had already passed isolated Mesas and sighted others, at intervals, to the left and right of our line of march. But now we were brought up by an extensive Mesa ridge rising like a wall to over fifty feet, which forced us to make a considerable detour to the east before we could find a passage practicable for the camels. Beyond it we again crossed ground covered for a mile and a half with Yārdangs only ten to fifteen feet in height and were able at one point to collect a little fuel from the top of one of them; a badly eroded dead tamarisk-cone was also in sight at this point. Then again a regular line of Mesas up to sixty feet in height was encountered. A breach in their wall-like array allowed us to get the camels through without too great trouble. But they had all been severely tried by the ground that we had met since leaving the edge of the Sai, and regard for their tired condition and the approach of darkness obliged us to pitch camp after having covered altogether about seventeen miles. Scanty debris of dead tamarisks allowed us to economize fuel.

Absence of human vestiges.

The general impression left upon my mind by the day's march was that during the period when the easternmost portion of the Kuruk-daryā delta was still receiving some water and was habitable for semi-nomadic herdsmen and the like, a belt of utterly barren ground, wind-eroded and partly salt-encrusted, separated the foot of the gravel Sai from the riverine belt of vegetation. No vestige of the presence of man had been met with anywhere on this ground. Having regard to the position of the previously explored remains at L.E. and L.F., it was clear that the ancient route would have to be searched for farther south.

L.F. post sighted.

On the morning of February 26th we rose in the dark and managed to get the camels loaded and started by daybreak. A belt of Mesas sixty to eighty feet high was crossed to the south within less than a mile from Camp C. xcix. It presented clay terraces, fantastically eroded and often curiously suggesting ruined strongholds, watch-towers, or Stūpas (Fig. 177). The biting wind, which on the previous day had for once been blowing from the south-west, had died away during the night, and the atmosphere had in consequence become clearer. So, after clambering to the top of a towering Mesa, we were soon able to recognize far away to the south the long isolated ridge bearing the remains of L.F. I was thus assured of having steered correctly towards the eastern extremity of the previously surveyed area. The ground that we entered beyond the belt of Mesas was easy, furrowed by Yārdangs only four to ten feet high. But after about two miles' progress the soil turned to hard salt-impregnated clay, with a billowy surface. This caused fresh trouble to the camels, most of them already footsore from the previous day's march. Just before we came upon this ground dead tamarisks were found in patches, and near one of them we picked up a *Wu-chu* coin, evidence of the passage of man.

L.Q. left unvisited.

Having covered about four and a half miles from Camp xcix, we found ourselves about half-way between the Mesa L.Q. to the west, on which Afrāz-gul's first reconnaissance had shown the presence of some graves, and the Mesa L.I. to the east, which he had visited on February 16th

* See below, pp. 297 sq., 309 sqq.

under my instructions from L.F.[7] The ancient refuse he had noted on L.I., together with small relics picked up near it, clearly indicated occupation of that Mesa during the historical period. Its position on the plane-table agreed with that north-easterly direction which the position of L.C., L.E. and L.F. relative to the Lou-lan station had led me to conjecture as the probable line of the old Chinese route. So I decided to march straight to it. The experience already gained of the trials confronting our camels made me doubly anxious to avoid any needless moves which would cause loss of time and delay in carrying out our main task. Afrāz-gul's report had shown me that the graves of L.Q. were evidently of the same type as those explored at L.F. but less well preserved, and this made me less reluctant to forgo on this occasion a visit to L.Q., which meant saving a day. Its graves were duly explored a year later.[7a]

Enforced halt at L.I.

As we moved towards the Mesa the ground became more sandy and dead tamarisks increasingly frequent on low Yārdangs. But the camels in spite of the improved going lagged sadly behind. When the convoy had at last come up at L.I., I learned that one camel had completely broken down and had finally been left behind after removal of its load. Hassan Ākhūn, who had had charge of the camels on all my three journeys and whose experience made him more than ever the main prop of my transport arrangements on this difficult desert voyage,[8] earnestly urged the need of an immediate halt. He and the other men would require the rest of the day and the night to 're-sole' the camels, whose feet had developed cracks and sores on the hard salt-encrusted ground. If we pitched camp at the foot of the Mesa he would also have the chance, which he eagerly pleaded for, of bringing in the abandoned camel which I had already felt obliged to order to be shot. As the event proved, I was not to regret this enforced halt.

Refuse found on L.I.

A rapid examination of the three Mesas, lying close together near our Camp C. c and jointly marked L.I. on the map (No. 32. A. 3), produced convincing evidence that they had been occupied at the time when Chinese traffic was passing through Lou-lan, and perhaps even before. The Mesas, rising to about sixty feet in height, showed, indeed, no structural remains. But below the top of the northernmost Mesa abundant refuse of reed-straw mixed with cow-dung was discovered on sheltered portions of the slopes. Similar refuse, together with several pieces of simple reed matting, was also found in a small Nullah dividing the little plateau into two distinct portions. Layers of refuse were likewise found on the top of another of these Mesas lying close by to the south-east, while on its north-west slope we picked up many ragged fragments of a sheepskin lined with a coarse woollen fabric of 'open' weave. Everything pointed to these Mesas having once served as a camping-place for indigenous herdsmen, perhaps only periodically during summer seasons when the elevation of their tops must have made them welcome places of refuge from the plague of insects that infest the ground near the terminal marshes. We, too, in May 1907 had been glad to seek comparative safety from these pests on similar elevated ground near the point where the westernmost end of the Limes flanks the edge of the terminal basin of the Su-lo-ho.[9]

Finds on ground near L.I.

That such periodical occupation must have extended into historical times and, perhaps, until the final abandonment of Lou-lan, was proved by the glass bead, L.I. 013, which was picked up under my eyes at the foot of the northernmost Mesa, by the side of a well-worked stone arrow-head, L.I. 012 (Pl. XXII), evidently Neolithic. Afrāz-gul, when first visiting these Mesas on February 16th with some men, had searched the ground carefully and had then found some bronze fragments, including those of a bronze javelin, L.I. 05 (Pl. XXIII), besides several worked stones, among them the jade celt, L.I. 015 (Pl. XXII), and fragments of coarse decorated pottery, L.I. 01–5 (Pl. XXIII,

[7] See above, p. 266.

[7a] See below, Chap. XX. sec. iv.

[8] Regarding Hassan Akhūn's previous services and the features in his character that made his help so valuable for serious desert work, cf., e.g., *Desert Cathay*, i. pp. 112, 373 sq.

[9] Cf. *Desert Cathay*, ii. pp. 134, 157 sq.

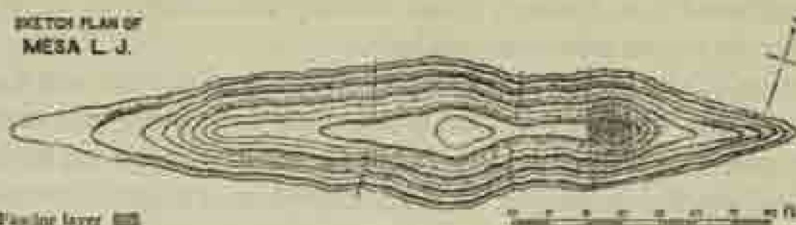
XXVI). Here as elsewhere in the Lou-lan area, erosion had brought objects of the Stone Age and of the early centuries of our era into close juxtaposition on the surface.

Search for indications of ancient route.

As soon as I had satisfied myself rapidly as to the character of these scanty remains, I set out for the urgent and far more important task of looking for indications of the direction that the ancient route had followed in the desert beyond. From the height of L.I. I had sighted through my glasses an isolated Mesa bearing N.60°E., and towards this I proceeded with Tokhta Ākhūn. At the same time I sent out Afrāz-gul to search some Mesa ridges to the NNE. which seemed nearer. Moving as I was in the direction parallel to that of the Yārdangs, ten to fifteen feet high, I found progress easy. Dead tamarisk-cones were at first numerous and suggested that subsoil moisture must at one time have reached this ground from the Kuruk-daryā. After two miles' march from L.I. I came upon a well-marked depression, which subsequent examination proved to be a dry river-bed coming from the north-west. In the middle of the bed, about 160 yards wide here, I noticed a low terrace covered with matted dead reeds and on it a dead tamarisk bush. Its well-preserved appearance suggested that at a period not very remote water had found its way here into a river-bed of probably far greater age. The fact that the top of the terrace lay about ten feet below the level of the banks seemed to support this conclusion. A much-fissured Toghrak trunk lying within the bed looked as if it had lain exposed for centuries.

Brushwood layer sighted on L.J.

After passing through a belt of close and deep-cut Yārdangs I emerged on more open wind-eroded ground and at a direct distance of four miles from L.I. reached the Mesa previously sighted



(Fig. 178). It had a length of about 105 yards from ENE. to WSW. and rose to a height of about forty feet above the immediately adjoining flat ground. As I approached nearer, my eye was caught by a thick layer of brushwood on a small knoll crowning the north-eastern portion; this brushwood overhung the eroded soil immediately below it. The sight was familiar to me, having frequently observed on the Tun-huang Limes and elsewhere how the foundation of structures reinforced by reed layers or fascines survived, though the clay soil immediately below the edges had been carried off by erosion.[10] On climbing up to the very narrow top of the Mesa I found my prompt surmise completely confirmed.

Foundation of watch-tower.

The knoll rising above the north-eastern end of the Mesa was covered for a length of over twenty feet with a solid layer of closely packed bundles of tamarisk branches which still reached a height of about three feet. The width of the layer was about eight feet, extending over so much of the tapering top of the Mesa as the paring action of wind-erosion had spared. There was evidence that what I could now safely recognize as the foundation layer of a watch-tower had once been far wider; for tamarisk branches loosened by erosion had fallen from the top and were strewing the slope immediately below. A massive Toghrak post rose above the middle of the layer and had evidently been inserted for the sake of reinforcement, like the timber frame found in the walls of the fort L.K. and in most of the Limes watch-towers.[11] The length of over twenty feet which the layer still retained along the longitudinal axis of the Mesa clearly owed its survival to the fact that the prevailing winds were not able to assert the full force of their erosive action except on the

[10] See, e. g., *Serindia*, ii. Figs. 169, 170, 177.

[11] See above, p. 185; *Ser.*, ii. pp. 737 sq.; Figs. 150, 169.

sides. The paring down of the sides of what must have been the foundation of a square tower or watch-post was due to exactly the same cause as had brought about the complete breaching and final disappearance of the walls of the L.A. enclosure where they faced the prevailing wind direction, while those lying parallel to it could still be traced over considerable stretches.[12]

Evidence of occupation of watch-tower.

The dimension of about twenty feet and a half that the extant fascine layer still preserved in the longitudinal direction corresponds exactly to the measurement which the square watch-towers of the Tun-huang Limes most frequently show at their base.[13] The use of tamarisk brushwood for the fascines similarly agrees with the evidence afforded by the wall and towers of the Limes that the old Chinese engineers readily adopted for their constructive work whatever material the adjoining ground then offered and usually still provides.[14] There were accordingly strong grounds for inferring that this tower at L.J. was of Chinese origin and of a period approximately contemporary with the Limes. That it had been tenanted as a look-out post, just like the towers of the Limes, was proved by the small heap of miscellaneous refuse I found half-hidden under fallen clay about four or five feet below the foot of the south-east corner of the surviving fascine layer. In this refuse were burnt pieces of tamarisk wood; a mass of fragments of rush matting, L.J. 02 (Pl. XXVI); a small heap of reed-straw; remains of a grass, L.J. 09, which Tokhta Ākhūn declared to be *yiken*, such as grows along the shores of rivers and lagoons,[15] and plentiful chips of Toghrak wood. Fragments of rough pottery, L.J. 04–6, were picked up lower down on the slope.

Guidance from position of L.J.

However insignificant these finds were, and however modest the remains of the tower itself, their discovery on the Mesa L.J. afforded important guidance, and justified my feeling elation. The position of the ruined watch-post on the plane-table fell exactly into the same line to the north-east as all the sites we had traced from L.A. to the *castrum* L.E. and beyond. This appeared a sufficient indication that the ancient Chinese route had passed here, and that I should have to look for its immediate continuation in the same direction. It is true, this bearing was leading us away from the great valley-like depression between Bēsh-toghrak and Kum-kuduk, with its wells and grazing, through which passes the present caravan track from Lop to Tun-huang, and where alone water could be hoped for. These natural advantages must have imposed its use likewise for the ancient Lou-lan route. At first therefore it might seem somewhat disconcerting deliberately to turn away from the direction which would bring us to that track.

Physical obstacles ahead.

But from what the march of February, 1907, had shown me of the great salt-encrusted Lop sea-bed, and from the graphic description of Professor Elsworth Huntington, who a little more than a year before had pluckily crossed it from Kōshe-langza to Āltmish-bulak,[16] I knew that the vast expanse of hard salt crust offered most serious physical obstacles to a route leading straight across to the south-east from ancient Lou-lan. I also remembered what previous explorations had taught me of the remarkable skill with which Chinese enterprise always adapted itself to essential topographical features and thus economized effort and avoided needless risks.[17] By continuing farther to the north-east and thus drawing nearer to the foot of the Kuruk-tāgh the Chinese pioneers of the ancient 'route of the centre' were able to reduce the extent of the most difficult portion of the ground, that presented by the dry sea-bed with its corrugated surface of hard salt. At the cost of a detour they could thus avoid much hardship and escape the necessity of confronting physical obstacles which, added to all the other difficulties of the desert, must then as now

Reasons for continuing to NE.

[12] Cf. *Serindia*, i. p. 386 sqq., and for exactly corresponding observations as regards the badly breached walls of ruined towns near An-hsi and Ch'iao-tzŭ, *ibid.*, iii. pp. 1095 sq., 1102 sq.

[13] See *ibid.*, ii. p. 737; for watch-towers, twenty to twenty-one feet square at the base, cf. *ibid.*, ii. pp. 591, 597, 600, 603 sq., 635, 644, &c.

[14] See *ibid.*, ii. pp. 736 sq.

[15] Mr. Scully's list of 'Turki names of plants' in Shaw, *A Sketch of the Turki Language*, Pt. ii, p. 226, gives '*yakan*, Reed-mace, *Typha angustifolia*.'

[16] Cf. Huntington, *Pulse of Asia*, pp. 251 sqq.

[17] Cf. e. g. *Serindia*, ii. pp. 583 sq., 632, 663, &c.

have appeared insuperable to traffic. The same physical difficulties still faced us, in fact had become even greater, since Lou-lan had ceased to hold water and therewith to support life. Accordingly it did not take me long, once I was satisfied as to the character of the remains on the Mesa, to decide that it was my best course to follow the guidance afforded by our antiquarian discoveries and to continue the line to the north-east.

Old river-bed traced.

I had instructed Afrāz-gul to keep an eye on my movements; so it was not difficult for us to get into touch from the top of our respective Mesas. As I turned back from L.J. in his direction I crossed once more the previously mentioned depression, but at a point higher up, where its character as an old river-bed was quite unmistakable. Its well-marked banks were from about twenty to twenty-five feet in height, and its width about 160 yards. It was interesting to note along its centre a line of dead tamarisk-cones thickly covered with dead roots and branches. Elsewhere the bottom of the wide bed was eroded and showed Yārdang ridges and trenches running in their regular direction from ENE. to WSW.

Growth of tamarisk-cones in bed.

From the fact that the top of the tamarisk-cones still remained some ten feet below the level of the banks it seemed safe to conclude that the growth of the tamarisk-cones had started at a time when the bed had been deserted by flowing water and become dry, but when subsoil water was still near to its bottom. In the ancient river-bed near the southern end of the Niya Site I had observed a similar chain of tamarisk-cones; but there they were still alive on their tops and rose considerably above the level of the ancient banks, as seen in my photographic panorama.[18] The probable explanation seems to be that while both river-beds may have lost their flow of water about the same period, subsoil water at the Niya Site has remained sufficiently near to the surface to permit the continued growth of the tamarisk-cones down to the present day, when their tops rise twenty feet or more above the banks. Here, on the other hand, at the extreme north-eastern edge of the ancient Kuruk-tāgh delta, subsoil water must have disappeared completely, say, some five or six centuries after water had ceased to flow in the bed. The estimate of time allowed for the increase of height in the cones here must, of course, remain purely conjectural; for the rate of growth per century may well be different on this ground from that approximately determined at sites south of the Taklamakān.[19]

Possible connexion of river-bed.

Judging from the position of this river-bed to the west of L.J., one might be inclined to connect it with the northernmost terminal branches of the Kuruk-daryā, which, as Map No. 29. D. 3 shows, were traced by us to near the latitude of 40° 40′. But no recognizable bed was crossed by us on our march from Āltmish-bulak to L.I. On the other hand, the direction of the bed where we did see it closely coincides with that of the big flood-bed coming from Āltmish-bulak as last sighted at its issue from the 'Sai', about ten miles to the north-west (Map No. 29. D. 3). Whether there is a connexion between the two, and whether the bed surveyed near L.J. has its continuation in the wide salt-encrusted depression which Afrāz-gul crossed in February, 1915, on his march along the western edge of the ancient Lop sea-bed about eleven miles to the south-east, could only be settled by further detailed survey. I may here record also that on my way from L.J., at a point close to the right bank of the old river-bed, I came upon pottery debris of the same coarse kind as picked up at L.I.

Grave on Mesa NNE. of L.I.

Rejoined by Afrāz-gul, I was guided by him to a big Mesa, situated about one and a half miles to the NNE. of L.I. and rising to a height of over seventy feet. On a terrace of its north-western slope he had come upon a grave exposed by erosion. The badly decayed body had rested in a coffin made of rough Toghrak trunks, and the head still retained tufts of fair hair. Though little

[18] See *Serindia*, i. Fig. 75; cf. also above, p. 44; *Desert Cathay*, i. Pl. III.

[19] See *Serindia*, i. pp. 199, 284; iii. p. 1251.

else had survived apart from the skeleton I had little doubt that the remains were those of an indigenous burial. No other relics of any kind could be found on the ground.

'Re-soling' of camels' feet.

On my return to camp I was relieved to find that the fine camel which had broken down on the morning's march had been brought in by the resourceful Hassan Ākhūn, after having been given a feed on part of the straw in its saddle and on a big loaf of bread. Its sore feet had been 're-soled' on the spot, and the same very painful but always effective treatment was now being applied in turn to the rest of the camels which had the pads of their feet similarly cracked and lacerated. It took half a dozen men to hold down each of the poor beasts, writhing with pain while the piece of stout ox-hide was being sewn on to the live skin to cover the sore portion. So the men were all kept busy with this trying operation till long after dark. Fortunately there was still some dead wood near by, which made it possible to keep fires blazing. By their light Hassan Ākhūn and his expert assistants were also able during the night to administer their first dose of rape-seed oil to the camels, a treatment designed to maintain their strength under fatigue and privation. The beneficent if strong-smelling liquid had to be poured down the nose of each reluctant recipient. The noise attending the process continued almost throughout the night and left little chance of sleep for the rest of us.

OBJECTS FOUND BY AFRĀZ-GUL KHĀN ON, AND CLOSE TO, MESAS L.I., FEBRUARY 16, 1914

L.I. 01. Pottery fr., badly washed and containing coarse chips of dark grey stone. Two bands of cable on outer side. Friable. 2" × 1⅜". Pl. XXVI.

L.I. 02. Pottery fr., of similar quality to L.I. 01, with triple chain band. 1¾" × 1¼". Pl. XXVI.

L.I. 03. Pottery fr., of similar quality to L.I. 01. Triple cable band. 1¼" × 1¼". Pl. XXVI.

L.I. 04. Pottery fr., of similar quality to L.I. 01. Rough oblique tool-marks on outside. 1⅞" × 1⅜". Pl. XXVI.

L.I. 05. Two bronze frs., of javelin or large arrow-head. Rounded point; thick central rib pierced for shaft at lower end. Blade clipped. Total length 3¼" × 1" × ⅜". Pl. XXIII.

L.I. 06. Fr. of bronze sheet. 1" × ⅝".

L.I. 015. Jade celt. Length 3¼", gr. width 1⅜". Pl. XXII.

L.I. 016. Fr. of worked stone, with hole in corner. Black. Gr. M. 1¼".

L.I. 017–18. Two stone points; of irregular lozenge shape, one end being much elongated. Edges thick; 017 unsymmetrical. *017*, length 1⅜", gr. width ⅝"; *018*, length 1$\frac{7}{16}$", gr. width $\frac{11}{16}$". Pl. XXIV.

OBJECTS FOUND AT MESAS L.I., FEBRUARY 27, 1914

L.I. 010. Fr. of stone, grey, lamellar. 1⅛" × ½" × ⅛".

L.I. 012. Jasper arrow-head, leaf-shaped point; long, well-worked, dark brown stone. Cf. L.M. 0155. Length 2⅜", gr. width $\frac{7}{16}$", gr. thickness ⅛". Pl. XXII.

L.I. 013. Fr. of glass bead; greenish white, translucent. Diam. $\frac{7}{16}$".

OBJECTS FOUND AT, OR NEAR, RUINED WATCH-TOWER L.J.

L.J. 01. Eighteen bronze arrow-heads, found within 1½ square feet, on line of ancient Chinese route, ⅞ mile ENE. of L.J. All alike, as L.G. 011 (Pl. XXIII) and examples described, *Ser.* ii. p. 767 (under *T. 007); see *ibid.*, iv. Pl. LIII, T. xiv. a. 007.

Blade solid, triangular in section, with triangular faces slightly rounded towards point; no depression in faces. Hexagonal shank, cast with iron tang, perished in all but one, which is joined to another head by corrosion. Good condition. Average length $\frac{13}{16}$", gr. width ⅜". Pl. XXIII.

L.J. 02. Mass of frs. of rush matting, precisely similar to that now used in Kashmir. Three degrees of fineness represented. Very brittle. Total length of all pieces 24", average width 9¼". Pl. XXVI.

L.J. 03. Fr. of wood, smoothed on one side, broken on others. 2" × 1¼" × ⅜".

L.J. 04–6. Three frs. of pottery; very coarse, impure, greyish-red clay. Gr. fr. (*04*) 2¼" × 1¾" × ⅜".

L.J. 09. Frs. of grass and twigs, from below watch-tower.

Section II.—THE LOCATION OF THE 'TOWN OF THE DRAGON'

Start beyond last ruin, L.J.

On the morning of February 27th I was able to secure an early start without the effort usually needed; for the men, in spite of the toil of the night, now all realized the importance of covering more ground, if a break-down of the animals was to be avoided before we could reach water and grazing. Our march was first directed upon the Mesa L.J., which the remains of the ancient tower discovered on the preceding day had clearly marked out as a safe starting-point. About half-way to it, Afrāz-gul's keen eyes lighted upon two *Wu-chu* coins close to our track, still preserving their legend, though worn. I noted that the very last trace of ancient vegetation disappeared soon after we had passed the previously described dry river-bed. It was clear that we had reached here the extreme eastern limit of the area to which the waters of the Kuruk-daryā had once carried life. There would be no ruins to guide us along the ancient route beyond the tower of L.J., which had evidently once guarded it as an advanced watch-post. There was every indication that the desert eastwards had in ancient times been as devoid as it is now of any kind of plant or animal life. As we left behind us the withered and bleached fragments of the last tamarisk trunk lying on the salt soil, I felt that we were passing from the land of the dead into ground that never knew life—except on the route to be traced.

Chinese coins discovered by route.

From the top of L.J. we sighted far away a long dark Mesa bearing N. 60° E., and as this closely agreed with the direction in which the succession of sites from L.A. onwards had been discovered by us, I decided to steer towards it. We had crossed a belt of hard salt-impregnated clay and were moving among Yārdangs only four to six feet in height, separated by small trenches in which coarse sand lay over *shōr*. There, at a distance of less than a mile from L.J., Tursun Ākhūn, one of the camelmen, marching ahead with me, suddenly called my attention to some scattered coins within five yards or so of our track. I had given strict orders ever since our start from the Lou-lan station that any objects discovered on the march were to be brought to my notice, but left undisturbed until I could pick them up myself. I was thus able to satisfy myself that Chinese copper coins by the score strewed the sandy soil along a line parallel to the direction of our march for a distance of some thirty yards.

Line marked by scattered coins.

Rapid but careful examination showed that these coins, two hundred and eleven in all, were lying in groups or small heaps over a strip of ground nowhere more than three or four feet across. The coins were all *Wu-chu* coins of the large inscribed type (Pl. CXIX) and, with the exception of a few which had suffered breaks, were in perfect condition. They were all of uniform size and cast, and showing neither wear nor clipping seemed as if fresh from a mint. Examination with the compass proved that the well-defined line along which they lay ran from north-east to south-west. It was clear that all these coins had dropped from a caravan moving in the very direction in which I had supposed the ancient route to lie. They must have got loose from the string which tied them and gradually dropped out unobserved through an opening in their bag or case. The swaying movement of the camel or cart in which this receptacle was probably carried sufficiently explains why the line marked by the scattered coins had the width above indicated.

Arrow-heads dropped from convoy.

Any doubt as to the character of the convoy from which this 'petty cash' had been lost was removed when Naik Shamsuddīn, on arriving with the camels, for which he acted as rearguard, and searching the ground near by, came upon a scattered heap of bronze arrow-heads behind a small Yārdang, at a point about fifty yards S. 50° W. from where the line of coins ended. The arrow-heads, all in very fair preservation, lay close together over a piece of ground about a foot and a half in diameter. Two were found sticking together through corrosion, which suggests that they had been originally closely packed together in the same bag or box. All the arrow-heads, as seen in Pl. XXIII, were uniform in shape, showing a solid triangular blade. Their type exactly agreed

with that most prevalent in the ancient Chinese ammunition of Han times, with which I had become so familiar in the course of my explorations along the Tun-huang Limes.[1] The documentary evidence there secured, as well as the weight of the arrow-heads, makes it certain that they were intended for use with cross-bows. The fact that these finds were both made close together and on the same line makes it appear very probable that arrow-heads and coins were dropped by some convoy of Han times coming from the side of China and carrying stores for troops. The way in which the coins as well as the arrow-heads had been allowed to remain on the ground, without being picked up at the time or by subsequent wayfarers, might suggest that the convoy moving towards Lou-lan from which they fell had been travelling at night-time, and probably a little off the main track, but still in the right direction. If more sand then covered the ground than the winds have left now, small objects would continue to remain hidden from view, even though traffic may have continued to pass close by for several centuries.

Direction of route indicated by finds.

The finds to which a fortunate chance had thus helped us at the very start were of great importance for my task. They gave welcome assurance that the direction I had decided to follow on the strength of previous antiquarian indications was indeed that of the ancient track by which Chinese political missions, troops, and traders had toiled for centuries through this lifeless wilderness. But they offered another advantage for which I had reason to feel grateful. By their very nature they helped greatly to raise the spirits of my men and filled them with superstitious confidence that spirits were safely guiding them. I myself could not help feeling a strange thrill when I showed Hassan Ākhūn and the rest of my Turki myrmidons the well-defined line running from south-west to north-east, just as if some kindly spirit among those patient old Chinese wayfarers who had followed this desert route beset with hardships and perils had wished to assure us that the bearing I was steering on was the right one. With a few similar incidents to be presently recorded it made me feel at times as if I were living through experiences dimly remembered from some fascinating story of Jules Verne's which I had read as a small boy.

Approach to Mesa-covered area.

Beyond the spot where the coins were found the ground continued, for another mile and a half, to show the same salt-encrusted clayey surface with low Yārdangs. We then crossed a slight depression only about a quarter of a mile wide, with a hard crust of bare whitish salt, and reached ground where *shōr* gradually gave way to decomposed clay with an abundant admixture of gypsum[1a] flakes and here and there a thin layer of coarse sand. It provided easy going for the camels, and when, after seven and a half miles' march from Camp c, we reached the long narrow Mesa that had served as our guiding-point from L.J., the view obtained from it showed the same flat surface stretching for a considerable distance north-eastwards, and rows of Mesas adjoining it to the north. Our advance continued along the same bearing as we had followed from L.J. and brought us steadily nearer to an array of boldly sculptured Mesas of red clay on our left. To the south and south-east only a few isolated Mesas could be seen, rising above the level expanse of what, from a distance, looked like *shōr*, extending right away to the horizon and obviously marking what had been the western shore of the ancient sea.

Mesas suggesting ruined structures.

For a distance of fully ten miles we thus skirted the southern border of an area covered with rows upon rows of Mesas. With their fantastically eroded shapes they suggested visions of ruined mansions, bastioned town walls, towers, or Stūpas, all red as if built of sandstone. Our north-easterly route, to which I was careful to adhere, were it only for the sake of the camels, kept us clear of the ground where these Mesas stood close together and rose to heights which I estimated at eighty feet or more. The few terraces, outliers as it were, which we actually passed by the side

[1] See Descriptive List above, p. 289; *Serindia*, ii. pp. 759, 767 (under *T. 007); iv. Pl. LIII.

[1a] Throughout the ground surveyed near the Lop sea-bed the entry 'mica' in Maps Nos. 29, 32 should be replaced by 'gypsum'.

of our track averaged only twenty feet or so in height and were correspondingly narrow. Their axis lay uniformly from S. 20° W. to N. 20° E., and thus differed distinctly from that of all the Yārdangs observed in the Lou-lan area. The same applied to the bearing of successive rows of Mesas as observed with prismatic compass from our route.[2] The difference of bearing in this belt of Mesas is all the more noteworthy that the Mesas farther west which our route from Altmish-bulak crossed in the vicinity of C. xcix, and which probably connect with this belt, approximately conform in their direction to that of the Yārdangs of the Lou-lan area.[3] The slopes of the Mesas actually examined were covered, like the ground adjoining, with flakes of disintegrated gypsum.

March over bare level plain.

From a Mesa where a 'fixing' was made after we had covered fifteen and a half miles, I could see that the belt of Mesas was thinning out northward on ground that seemed to rise slightly. But a strong south-west wind had by then obscured the horizon with haze, which prevented us from seeing the foot of the gravel glacis lying in that direction. At a distance of eighteen miles from C. c we reached the last Mesa, rising to over forty feet with a Stūpa-like dome in the centre. Before us a bare plain, almost perfectly level, stretched to the east and north-east. To the north-north-west the edge of the Mesa-covered area was seen to curve round towards the point where Afrāz-gul on his subsequent survey of February 15th, 1915, reached the lowermost edge of the Sai below Yetim-bulak. In order to make the most of the good ground for the camels we pushed on another four miles, the soil remaining much the same as before, but for a slight hardening in places owing to a thin outcrop of salt. The camels had kept up remarkably well all day, the worst sufferer of the preceding day being led at their head unladen; they reached the patch of soft ground selected for our camp within eleven hours from the start.

Li Tao-yüan's 'Town of the Dragon'.

The day's march, apart from the important find of coins and arrow-heads beyond L. J., had not furnished other relics of the ancient Chinese route. But the ground traversed had shown natural features that proved of material help in elucidating an interesting point in the ancient topography of the Lou-lan region. I had occasion, when dealing in *Serindia* with the Chinese historical records concerning Lou-lan, to discuss fully the important details to be found in the commentary on the *Shui ching*, composed by Li Tao-yüan 酈道元 some time before A.D. 527, from which extracts were first rendered accessible by M. Chavannes's translation.[4] I there showed that the information given by Li Tao-yüan, undoubtedly from earlier sources, about the course of the 'River of the north' towards the 'town of Lou-lan' 樓蘭城 and its final outflow into the 'lake P'u-ch'ang' 蒲昌海, agrees remarkably well with what our surveys have shown of the early hydrography of the region once watered by the Kuruk-daryā.[5] I indicated in the same work my belief that the 'Town of the Dragon', to which the concluding portion of Li Tao-yüan's account refers, can safely be located in the area covered with big Mesas past which the march just described had taken us. Before reproducing Li Tao-yüan's notice of the 'Town of the Dragon' and explaining the considerations which determine my location of it, it will be convenient here briefly to summarize once more the data furnished by the passages immediately preceding.

Course of Li Tao-yüan's

The identity of the river to which Li Tao-yüan referred with the Kuruk-daryā is made perfectly clear *ab initio* by its eastward course being described as lying south of the kingdom of *Mo-shan*

[2] A closely similar deviation from the regular Yārdang direction was observed by Dr. Hedin in the clay ridges of a belt which he crossed on his march of February 17, 1901, to the west of a *shōr*-covered depression forming probably an extreme north-eastern inlet of the Lop sea-bed; cf. Hedin, *Central Asia*, ii. p. 114. Its position corresponds approximately to that of the salt-encrusted bay shown in Map No. 32. C. 2 to the north of Lāl Singh's Camp C. 90.

[3] The delineation of the Mesa belt in Map No. 32. A. 3 is too conventional to bring out the relative bearing of Mesa to Mesa in each row; our plane-table, however, correctly records it.

[4] See M. Chavannes's *Note additionnelle* to 'Les pays d'occident d'après le Wei-lio', *T'oung-pao*, 1905, pp. 563; *Serindia*, i. pp. 324 sqq., 419 sqq.

[5] Cf. *Serindia*, i. pp. 420 sqq.

墨山; for the location of Mo-shan, also called *Shan* 山 in the Han Annals, in the westernmost Kuruk-tāgh is established.[6] On their farther course to the east the waters of the river are said to pass south of the town of *Chu-pin* 注賓. By this, as I have been able to prove elsewhere, the site of Ying-p'an at the head of the present Kuruk-daryā must be meant.[7] 'Farther east', we are told, 'they pass south of the town of *Lou-lan* and then run off eastwards.' A reference which the commentator makes here to the story of a Chinese military colony established at this town has been fully elucidated by me in *Serindia*. It renders it quite certain that by the 'town of Lou-lan' the site of the ruined station L.A. and its vicinity are intended.[8] The statement as to the river's course being south of the town is in complete agreement with what the surveys recorded above in Chap. VI. sec. v have shown us of the succession of ancient river-beds, all deltaic branches of the Kuruk-daryā and several of them of great width, crossed on our march to L.A. from the south. To the north of the ruined station we had met with only a few dry beds and none of considerable size. 'River of the north.'

The next passage of the text directly concerns us here and may therefore be quoted in full: 'The waters of the river (*Ho*) 河 proceed farther east, to empty themselves in the *Yu* marshes 泑澤 which are those called by the [*Shui*] *ching* the *P'u-ch'ang* lake 蒲昌海. The waters accumulate in the north-east of *Shan-shan* 鄯善 and in the south-west of the Town of the Dragon 龍城. Story of the 'Town of Dragon'.

'The Town of the Dragon is the site of the town in which at one time resided *Chiang Lai* 姜賴. This was a great kingdom of *Hu* 胡. An overflow of the *P'u-ch'ang* lake covered up the capital of this kingdom. The foundations [of this town] are still preserved; they are very extensive. If at sunrise one starts from the western gate one arrives at sunset at the eastern gate. At the scarped foot of this town a canal had been made. On the line which has survived of it, the wind blowing has gradually produced the form of a dragon of which the face turned westwards regards the lake. It is from this that the name "Town of the Dragon" is derived.'

For the interpretation of the important topographical points here furnished by Li Tao-yüan's account, the facts recorded in Maps Nos. 29, 32, on the basis of our surveys of 1914 and 1915 afford safe guidance. These show us that the ancient river-beds, forming part of the Kuruk-daryā delta and traced by us in the area south of the Lou-lan Site, must have terminated farther east in marshes by the western shores of that great salt-encrusted sea-bed, dried up since a far earlier period, which in the *Shui ching* and also in the Former Han Annals bears the alternative names *P'u-ch'ang* lake or 'Marsh of Salt' (*Yen-tsê* 鹽澤). The present freshwater marshes of the Kara-koshun, formed by the dying Tārīm near the south-western extremity of the same salt-encrusted Lop sea-bed, provide an exact counterpart to those 'Yu marshes' in which the river-beds of ancient Lou-lan once emptied themselves. Interpretation of Li Tao-yüan's story.

It was along the approximate line of their outflows into those marshes that the survey between Camps C. ccxxxix. a and C. ccxli. a was made under my instructions by Afrāz-gul in February, 1915. As will be seen from the ground shown on that line in Maps No. 32. A. 3, 4 and No. 29. D. 4 and from the surveyor's diary record, a series of dry beds, recognizable moreover in some places by dead Toghrak trunks washed down from the banks higher up, were successively encountered by him. South-eastwards they lose themselves in the vast expanse of hard crumpled-up salt which marks the former Lop sea-bed. By the side of these outflows there are found, for a distance of over forty miles from north-east to south-west, stretches of ground showing a surface of salt-encrusted clay, and in places still retaining dead reeds and tamarisks. These stretches of ground obviously Dried-up terminal marshes of Kuruk-daryā.

[6] Cf. Chavannes, *T'oung-pao*, 1905, p. 552, note 7; *Serindia*, i. pp. 334, 420.

[7] See *Serindia*, i. p. 420; below, Chap. XXI. sec. ii.

[8] Cf. *ibid.*, i. pp. 421 sqq.

mark the position of those terminal marshes, which, at the time when the Lou-lan area was under occupation, formed a fringe along the western shores of the ancient sea-bed. The same process of salt-impregnation can still be seen to-day in progress in the marginal marsh-beds of the Kara-koshun which the traveller passes on the first two marches by the caravan track from Abdal towards Tun-huang. Owing to their position remote from the termination of the Tārīm these beds have for long periods past received a supply of water increasingly saline, and that only at rare intervals; ultimately, owing to shrinkage or diversion of the inflow from the Tārīm, they have been left for the most part quite dry.[9]

Position of *Yu* marshes.

Now, of those *Yu* marshes once fed by the Kuruk-daryā Li Tao-yüan's above-quoted passage tells us that their water 'accumulates in the north-east of Shan-shan and in the south-west of the Town of the Dragon'. If we compare the position of Mīrān and Charkhlik—the only cultivable areas of any importance in ancient Shan-shan,[10] as seen in Map No. 30—with that indicated by the foregoing observations for the terminal marshes of the several Kuruk-daryā beds (Maps No. 29. D. 4; 32. A. 3, 4), it is clear at the first glance that the north-eastern bearing here stated for the Yu marshes in relation to Shan-shan is perfectly accurate. Since they are said also to lie south-west of the Town of the Dragon it is obvious that the latter has to be looked for in the continuation of the same bearing from Shan-shan.

'Town of Dragon' not a ruined site.

On the ground to which this direction takes us it may be asserted with absolute confidence that no real town could ever have existed either in historical times or before then. We have seen that the area to the north-east of the Lou-lan Site, L.A., during the period when the route through it was frequented, could have afforded only the scantiest subsistence to a scattered population of indigenous herdsmen and hunters. The last dead tree marking the former existence of a riverine forest belt was left behind near the burial-ground of L.C., and beyond a point close to L.I. the traces of ancient vegetation completely disappeared. The same observation, excluding the possibility of any larger settlement, applies equally to the utter wastes of bare clay, salt and gravel through which lay the routes of the surveyors farther north, as well as to the adjacent barren area of the Kuruk-tāgh. We are thus necessarily led to assume that the site described in Li Tao-yüan's account as once occupied by the Town of the Dragon was in reality not a ruined site, but a locality where popular imagination, stimulated by natural features, placed the remains of a town.

Folk-lore origin of story.

The vague reference of the text to 'a great kingdom of *Hu*' or barbarians, the submergence of its capital by 'an overflow of the P'u-ch'ang lake', the huge extent ascribed to the 'foundations' still preserved of this town,—all these suggest that we are dealing here with a creation of folk-lore. But the essential fact confirming this impression is that on the very ground to which we are taken by Li Tao-yüan's clear and reliable topographical indications, there is found a striking natural formation accounting for the rise of that folk-lore tale.

Mesas suggest town walls, mansions, &c.

It is that great belt of high Mesas through which we first passed to the north of the *castrum* L.E. and along which our march of February 27th on the track of the ancient Chinese route had led us. With the wall-like steepness of their slopes and the fantastically eroded forms of their tops they must have suggested, to the imagination of ancient wayfarers, the walls, towers, and mansions of some vast ruined city. They called up the same ideas to us when we passed, the first travellers for many centuries, through this silent, utterly desolate scenery. That such was the impression on my Turkī followers was shown by the frequency with which my attention was called by them to dome-shaped Mesa tops which they took for 'P'ao-t'ais', i.e. Stūpas, and

[9] I had a good opportunity of observing this process on my marches of February 21–2, 1907, eastwards from Abdal along the southern shores of the Kara-koshun marshes; cf. *Desert Cathay*, i. pp. 504 sq.

[10] See *Serindia*, i. pp. 311 sqq., 335; above, pp. 170 sq.

thought likely to tempt exploration. That popular imagination in the Tārīm basin has from early times been always much exercised by stories about ruined towns to be found in the desert, I have repeatedly had occasion to point out.[11] And the legend current in the Uch-Turfān tract, which places ancient castles full of treasure among the fantastically serrated rocky peaks of Kāka-jāde, provides a striking example of the readiness with which this belief attaches itself to natural features.[12] Parallels to this process could, no doubt, be found in Western folk-lore also, especially in that of alpine regions.

This identification of the Town of the Dragon derives direct support from what at first might appear a fanciful exaggeration. I mean the huge extent attributed to the town by the mention that it was a long day's journey from the western city gate to the eastern. As a matter of fact, it took us a march of fully eighteen miles from L.I. in a straight line to get past the southern face of the Mesa belt, and this belt, moreover, as Map No. 32. A. 3 shows, extends for about four miles to the south-west of our starting-point.[13]

Huge extent of legendary town.

Owing to the urgent necessity of assuring rapid progress along what I had recognized as the line of the ancient route, it was to my regret impossible at the time to attempt any close examination of the Mesa-covered area. I am therefore unable to offer any suggestion as to where the canal of which traces were supposed to survive 'at the scarped foot of the town' should be placed. Still less can I locate the particular clay ridge from the form of which tradition appears to have derived the name 'Dragon Town', as recorded in the concluding words of his passage.

Local features mentioned by Li Tao-yüan.

But it is interesting to note that in the reference to the wind which 'blowing has gradually produced the form of a dragon', we have what looks like a correct comprehension of the great part played by wind-erosion in the surface configuration of this ground. Whether the description of 'the form of a dragon, which with its face turned westwards regards the lake', has any possible connexion with the general NNE. to SSW. bearing of individual Mesas is a question to which even renewed examination of that strange ground might not permit us to give a confident answer. But we shall see presently how fully my own observations confirmed the accuracy of Li Tao-yüan's notice concerning the physical characteristics of the region adjoining the Town of the Dragon, and this must strengthen our belief in the intimate local knowledge possessed by the authority from which he borrowed the statements above discussed, together with the rest of those relating to Lou-lan topography.

Section III.—ACROSS THE SALT-ENCRUSTED LOP SEA-BED

The level plain of clay which lay before us at Camp ci offered promise of easy progress; I was therefore tempted to abandon the assumed bearing of the ancient route which we had followed so far for an almost due easterly course. I was anxious to avoid lengthening unnecessarily the march across the hard salt crust of the ancient sea-bed which I knew lay ahead of us. On the other hand, there was also danger in approaching the glacis of the Kuruk-tāgh too closely and thus being led away from the nearest line towards our definite goal, the wells of Kum-kuduk, in the south-east. The morning was cloudy when, on February 28th, we started at daybreak, and the hills of the Kuruk-tāgh to the north seemed strangely near. Finally, not without hesitation, I chose as our immediate guiding point the single small prominence rising above the flat plain eastwards, obviously a Mesa.

Easterly course taken.

[11] Cf. *Ancient Khotan*, i. pp. 455, 460; *Serindia*, iii. p. 1234 with note 11 on earlier notices.

[12] See *Serindia*, iii. pp. 1301 sq.

[13] The total length of the Mesa belt from L.E. north-eastwards was wrongly estimated, *Serindia*, i. p. 423, at 'close on thirty miles', the correct compilation from the several plane-table sheets not being available at the time of writing.

Marches to isolated Mesa.

We had scarcely covered half a mile when the discovery of a *Wu-chu* coin picked up under my eyes gave welcome assurance that notwithstanding the altered direction we could not be far off the line which the ancient Chinese route had followed. Then we tramped on steadily for another five and a half miles, without my paying much heed at the time to the fact that the soil, though still showing a surface of decomposed clay with abundant flakes of gypsum, was increasingly hardened by salt impregnation. When we arrived at the Mesa, which rose to a height of about twenty-five feet above ground manifestly eroded, it too was found to be encrusted with *shōr*.

Relics found on Mesa.

Here a strange discovery awaited us. I was just preparing to climb the Mesa to inspect the ground ahead, when one of my men noticed three *Wu-chu* coins lying in line, about a yard or so from each other, close to the western foot of the ridge. I picked them up myself, and found that the impression left by them on the salty clay was quite clear. Next there were found on the north-western slope, about five feet above ground level, the gracefully designed hook, cast in copper, C. ci. 05 (Pl. XXIII), which probably formed part of a buckle, and the ornamental pierced copper ball, C. ci. 04 (Pl. XXIII), together with a small corroded fragment of iron, C. ci. 06. The close search which was immediately made brought to light on the southern slope of the Mesa, on a level about ten feet above the ground near by, the major portion of an iron snaffle-bit, C. ci. 02 (Pl. XXIII), and a small iron skewer with ring handle, C. ci. 03 (Pl. XXIII). A little apart lay the rusted but otherwise well-preserved iron dagger, C. ci. 01 (Pl. XXIII), retaining part of a cross-piece where the guard had been, and measuring over blade and tang a little over nine inches. This seemed to me the most striking of all the finds and suddenly brought back to my mind the similar incident in an explorer's quest, as told in one of Jules Verne's stories which I had read more than forty years before.[1] Finally we recovered two more *Wu-chu* coins, large inscribed pieces and well preserved, like the first finds, together with the fine pale-green glass bead, C. ci. 08 (Pl. XXIII), on the northern slope about eight feet above the ground level.

Evidence of ancient traffic.

The discovery of all these relics close together was a dramatic surprise. There could be no possible doubt that they dated from the period when the Chinese 'route of the centre' leading to Lou-lan was frequented by traffic. The evidence of the coins is completely supported by that of the small iron skewer C. ci. 03 (Pl. XXIII), which in shape and make exactly conforms to five other specimens excavated in 1907 at different watch-stations of the Han Limes west and north of Tun-huang.[2] The collective character of the finds afforded striking proof that notwithstanding our deviation from the bearing indicated by the previous discoveries, chance, or perhaps a kind of subconscious antiquarian instinct, had rightly brought us to what must have been a place of halt on the ancient desert highway I was endeavouring to trace.

Position of objects found on slope.

But however much I rejoiced at this happy chance and the further guidance it promised, it left two puzzling questions unanswered. The first, relating to the immediate locality, arose from the fact that, apart from the first three coins, all the objects were found on the slopes of the clay ridge. This necessarily suggested at first that they had reached their position through wind-erosion, which had carried off the soil on the top where they might have originally rested, as certainly had happened with the metal objects picked up on the slopes of L.C. But a very careful search made on the summit of the narrow ridge revealed no trace of any structural remains. Nor did

[1] See Jules Verne, *Voyage au centre de la Terre*, 54^{me} édition, pp. 306 sq.

The curious coincidence with the discovery of the old Norseman's dagger which helps to guide the explorer in the fiction appealed to me all the more powerfully, that perhaps nothing on this globe could in strangeness more closely resemble that vast subterranean sea by the shore of which the great novelist's fancy places the incident than the dread ancient sea-bed we were now approaching.

[2] Cf. *Serindia*, ii. p. 768, T.W. 005, 007 (Pl. LIV); p. 775, T. XII. a. 0026 (Pl. LIV); p. 784, T. XVIII. ii. 9 b; p. 788, T. XXVIII. 0019.

the rounded *shōr*-covered slopes bear out the assumption that wind-erosion was still here carrying on effectively its work of paring and scouring. It has since occurred to me that there might once have been shallow recesses or terraces cut into the sides of the ridge, to provide some kind of modest shelter, such as I had found on the slopes of the similarly isolated clay hillock, T. XIV, once occupied by quarters at the ancient Jade Gate of the Limes.[3] The small relics might have been left there by wayfaring occupants. The gradual disintegration of the clay would obliterate such semi-troglodyte hovels, while at the same time erosion, proceeding however slowly, would expose any hard fragments once hidden away on their floor. But all this must remain purely conjectural.

Choice of Mesa for halting-place.

Another problem, and one which at the time was bound to engross me far more, was presented by the outlook from the top of this Mesa. To the east, to which I turned with natural eagerness for a sight of the ground over which the continuation of our supposed route line would take us, the view was obstructed, beyond half a mile or so, by what seemed an unbroken maze of high parallel ridges, Yārdang-like in shape, but all glittering in a white coating of salt. The open bed of the dried-up sea I was looking out for was entirely masked by them. The view of this belt of forbidding salt-coated terraces at once brought into my mind the dreaded 'White Dragon Mounds' mentioned in all the early Chinese accounts of the direct Lou-lan route. How we should make our way through it was uncertain. So much, however, was clear, that the choice of the little Mesa on which I stood for a halting-place had probably been determined by the very nature of the ground which now faced us. There could be little doubt as to the reason for which it had been selected. At its foot was the first piece of ground, level and tolerably clear of salt, which ancient travellers moving westwards would strike after the trying march through the bed of the dried-up sea, with its blocks of hard salt, as described in Li Tao-yüan's notice quoted hereafter. The equally forbidding maze of white salt-encrusted ridges which now faced us and manifestly marked the proximity of its shore had also to be crossed before they could camp in comfort.

Origin of corrugated salt surface.

The encouragement derived from our fortunate discovery on the Mesa induced me to continue the eastward direction of our march. The soil turned rapidly into *shōr*, and as soon as we had passed into a depression masked by the outermost line of salt-coated ridges, this assumed the form of crinkled cakes of hard salt suggesting the petrified ripples of an inlet from the great dried-up sea. This surface was so trying for the camels, that after covering about a mile and a half from the Mesa I had to change the bearing to N. 80° E. in order to reach ground where easier going was offered by patches of soft brown *shōr*, i. e. salt-impregnated clay, between the salt-coated ridges. Among these patches I noticed small lakelet-like depressions in which large flat surfaces of pure salt were broken up by cracks into more or less regular pentagons. The position and flatness of these salt surfaces suggested that their formation was originally the effect of moisture. Their disruption, while drying, into cakes with crumpled edges and the subsequent corrugation of these cakes through contraction after renewed access of moisture seemed to offer a possible explanation of the origin and character of the process; operating on a large scale both as regards time and ground, it has covered vast stretches of ancient sea bottom, such as we subsequently encountered, with solid blocks of hard salt, heaved up and contracted into endless blisters and confused pressure ridges.[4]

Trying progress.

Thus we toiled on painfully for two more miles crossing line after line of salt-encrusted hillocks, all drawn out parallel like Yārdangs, but stretching from NNE. to SSW., and thus almost at right

[3] See *Serindia*, ii. pp. 684 sq.; also p. 721, concerning another such shelter cut into clay at tower T. XXIII. a.

[4] The above-recorded observation fully bears out Professor Huntington's explanation of the roughness of the salt plain that represents the ancient Lop Sea, as contained in his very graphic and accurate account of his crossing from Kōshe-langza to Altmish-bulak; see *Pulse of Asia*, pp. 251 sq.

among salt-encrusted hillocks.

angles to our intended easterly bearing. These ridges, as seen in Fig. 175, were not, like Yārdangs, steep, but had a rounded appearance with comparatively easy slopes. Their height at first was only ten to fifteen feet. But even so they were impracticable for the camels, while the gaps between them were invariably covered with contorted cakes of hard salt, more troublesome even than the crumpled *shōr* that filled the little valleys separating line from line. The camels were lagging far behind, and a disquieting report about their troubles had been brought to me, when at a distance of about nine and a half miles from our last camp I climbed a big salt-coated hillock rising to about thirty feet. The view ahead, and in fact all round, was very dismal. Everywhere the eye rested on a maze of elongated salt-covered hillocks, not of the clean-cut, well-defined shape of Yārdangs, but strangely twisted and screwed. Between the rows of these ran petrified streams of *shōr*, curiously suggesting miniature glaciers by the small pressure ridges of their surface. Nothing could be seen of the open expanse of the sea-bed, for which I was now eagerly on the look-out in spite of the difficulties that its surface was likely to offer.

Change of course necessitated.

I was thus left without any indication as to the probable width of this distressing belt of 'White Dragon Mounds'—to give them the ancient name which, as we shall see, duly belongs to them. To force our way straight through it by keeping to the course due east involved a risk of the break-down of some at least of our camels even before we came to the open 'sea' of hard salt. It looked, moreover, probable that no route, even in ancient times, could have led right across these forbidding hillocks. I therefore decided that the only course open to us was to move along the line running N. 20° E. to S. 20° W., in which the salt hillocks stretched, until easier ground was gained.

Ground revisited in 1915.

For this purpose we might change our course either to NNE. or to SSW. Consideration of the fact that the ancient route, where it could be clearly determined, had followed a general north-easterly bearing induced me to turn in the former direction. But if there had then been time to reconnoitre also to the SSW., I might well have given preference to the latter move; for when a year later, for reasons to be explained farther on, I had sent back Afrāz-gul for supplementary surveys on this forbidding ground, my capable young assistant, proceeding from the above point to the SSW. in accordance with my instructions, came at a distance of about two and a half miles upon more open ground with soft *shōr*, and even found a patch of bare clay and gypsum where he could camp within view of the open sea of hard salt.[3] We shall have occasion to return to this observation subsequently, when discussing the exact line followed by the ancient Chinese route where it crossed the bed of this strange sea.[4]

Along foot of salt-coated Yārdangs.

Having accordingly returned to the spot where the camels were halted, I led them to the north-east, keeping as close as possible to the foot of the Yārdangs; for there the crust of salt was less blistered than in the middle of the stream-like *shōr*-beds (Fig. 174). I noticed that the corrugated ridges of hard salt were highest, rising to as much as two feet above the general level, and the going worst, wherever, at a breach in the line of Yārdangs, two beds seemed, as it were, to mingle their *shōr* flow and increase the pressure. After having covered a marching distance of about six miles from the Mesa where the coins, &c., had been found, the height of the salt-coated ridges diminished and the *shōr* of the beds between them became mixed with clay and coarse sand. Two miles farther on, a long patch of soft brown *shōr* offered welcome relief to the camels' feet.

At a point nine miles from the Mesa, where we made a plane-table fixing, the ground looked

[3] Cf. below, Chap. xx. sec. iv.

In Map No. 32. B. 3 the entries 'clay' and 'mica' (*recte* gypsum) ought to have been confined to the ground close to C. ccxxxviii. a. To the north of this the belt of salt-coated Yārdangs is fully four to five miles wide; to the south it thins out.

[4] See below, pp. 311 sq.



174. MARCH BETWEEN SALT-ENCRUSTED YÄRDANGS TO SOUTH-EAST OF CAMP CII, NEAR SHORE OF DRIED-UP LOP SEA BED.



175. SALT-ENCRUSTED HILLOCKS BEYOND FIND-PLACE OF HAN COINS, ETC., BETWEEN CAMPS CI AND CII.



176. REED-BEDS OF ALTMISH-BULAK SEEN FROM ABOVE WESTERNMOST SPRING.

much more open and allowed us once again to take the direction N. 55° E. To the northward, only small Yārdang-like ridges could be seen, while to the north-east rows of reddish tower-like Mesas showed in striking contrast above them. They seemed far away and probably only their tops were visible; but the distance could not be determined as farther on we lost sight of them. It has occurred to me since that these far-off Mesas were probably identical with the belt of eroded terraces on somewhat higher ground which Lāl Singh's survey shows to the west of his camp C. 89 (Map. No. 32. B. 2).[2] As we proceeded the Yārdangs sank away rapidly, and soon only light swellings of the ground, in which abundant gypsum flakes were mingled with decomposed clay, remained to suggest the former existence of such formations.

Mesas sighted to NE.

After covering about ten and a half miles from the Mesa where the coins were found, we reached perfectly level ground of the same kind, slightly salt-encrusted and showing a thin layer of coarse drift-sand. From a small isolated hillock rising two miles farther on above this plain, I sighted to the east a continuous line of the familiar white salt-coated ridges. It could be seen stretching far away to the north-east, and is, I think, probably connected with the Yārdang belt which Lāl Singh's plane-table records about five miles to the south-east of his camp C. 89. The view obtained here decided me to abandon our north-easterly course and to steer due eastwards for the point where the fence of salt-encrusted ridges seemed thinnest. For another mile or so we still had the benefit of an easy surface of decomposed clay. Then followed what seemed a shallow depression covered with rows of low salt-encrusted hillocks, with flat beds of hard *shōr* between them. Fortunately the winds had driven a thin coating of coarse dark gravel across these, thereby making the ground less trying.

Progress over easier ground.

The direction of the rows of salt-covered Yārdangs was here, too, from N. 20° E. to S. 20° W. Their lines after about a mile thinned out, and when we arrived in the evening near the eastern edge of this Yārdang belt I had at last the perfectly open view before me of a vast salt-encrusted plain. It was the true bed of the ancient sea, which I knew that the old Chinese route to Lou-lan must have crossed, and which we had to face on the morrow. With its trials before us, I was glad to find a spot near the edge of the Yārdang belt where the salty ground, hard indeed but fairly smooth, allowed men and camels to lie down without discomfort, after the day's total march of close on twenty-one miles. But it was only with great difficulty that the iron tent-pegs could be driven into the surface of salt.

Edge of dried-up sea-bed reached.

Much of the night had to be spent by the men in 're-soling' those camels which had again become footsore on the hard *shōr* between the Yārdangs. After that dismal ground, it was almost with a sense of relief that in the light of the early morning of March 1st we beheld from the last Yārdang ridge the bed of the ancient sea stretching away to the east and south-east as a perfectly level plain. Only a few isolated knolls rose island-like slightly above it far away in the distance. Through powerful glasses it was just possible to make sure that these were the tops of hills, manifestly those with which the low desert ranges of the westernmost Pei-shan abutted on the huge dried-up basin. It was encouraging to point to them as affording assurance that 'land' was in sight, however long the difficult crossing before us might prove. To the north and north-east a continuous fringe of low hills showed above the horizon, very distant also, yet confirming my belief that the ancient route—which from evidence discussed below I knew to have crossed the sea-bed—could not be sought for much farther to the north than the point where we stood. On ground like this it seemed useless to search for direct evidence of the line actually followed by the route, even if considerations of safety had allowed time for the purpose.

View of sea-like expanse of salt basin.

[2] The Yārdang symbol was used by Lāl Singh without distinction for all formations due to wind-erosion, and has been retained in the map in the absence of further evidence.

Descent from shore of ancient sea-bed.

The shore of the ancient sea was well marked by the salty soil sloping away everywhere, gently but steadily, from the foot of the outermost Yārdangs towards the level plain. Owing to the gentleness of the gradient, it was difficult to estimate accurately the relative depression of the bed at the point where its surface seemed to become absolutely flat. But it could certainly not be less than thirty feet and might well be more. The distant hill-top to the south-east towards which I had proposed to steer became invisible as soon as we had begun to descend from the foot of the Yārdang line, and I accordingly directed our course to S. 94° E., where a short stretch of hill outline, rising island-like on the horizon, served as a convenient guiding point. Within half a mile from the 'shore' the salt surface, so far tolerably uniform, turned into a seemingly endless expanse of crumpled puckered cakes of hard salt. The edges of the buckled-up slabs of salt, rising at an angle, protruded often a foot or more above others crushed in beneath them (Fig. 179). The ragged edges invariably showed the white of pure salt, while the upper surfaces of the cakes generally had a greyish hue, probably due to the admixture of fine dust.

Trying march over hummocky salt crust.

Progress over this hummocky *shōr* was tryingly painful to the feet, even when protected by stout boots. Yet the camels kept up at first better than I had hoped for, evidently because stepping out widely they were able to select the less corrugated spots to put their feet on and thus to avoid the worst of sharp edges. After about eight miles' march the low hill-top to the south-east I had sighted from camp at sunrise reappeared above the hazy horizon. As the hills to the east seemed still as distant as before, I decided to steer for the former and thus to shorten somewhat the distance that still separated us from the south-eastern inlet of the dead sea along which we should find the Mīrān–Tun-huang caravan track with its wells. Still farther away to the south-south-east, there soon rose what looked like the top of a bold detached headland. I took it—rightly, as the subsequent survey proved—for the salient angle which the barren range overlooking that inlet projects into the dried-up sea-bed, and which I had previously sighted on our journey in 1907.[8]

Low hills fringing N. extension of dry sea.

It could now be seen that the island-like hill-tops to the north-east, which we had sighted from camp in the morning, joined on to the low range bordering the northernmost extension of the dry sea basin east of Kaurūk-bulak (Map No. 32. B, C. 2). The observation made at this time of the height of its crest sinking towards the east has been confirmed by the clinometrical readings taken by Lāl Singh, who passed nearer to the foot of that desert range. Our plane-table intersections clearly indicated a bend of the range to the north-east, probably enclosing a bay-like extension of the ancient salt sea. Lāl Singh's route, which actually led across this bay, subsequently proved that we had done well to avoid it by effecting our passage farther south.

Ridges of hard salt cakes.

After we had covered two miles of the new course, S. 120° E., the surface became even more trying than before. It now looked exactly like a choppy sea overrun with 'white horses', one to two feet high and suddenly turned to hard salt.[9] I wondered how long it would be before the camels' feet were all lacerated by the sharply serrated edges of the smaller protuberances which even their long legs could not avoid. And, indeed, I noticed that their track, as I followed it when hastening ahead after each fixing of the plane-table, was grievously marked by blood-stains. The camels, moreover, found a fresh source of trouble from here onwards in the shape of strange gaping cavities, usually from three to four feet in depth and somewhat less in width at their mouth, which studded the ground, often in close proximity to each other. Their sides were invariably encrusted with heaped-up floe-like blocks of rather darker salt (Fig. 180). These were leaning at sharp angles

[8] See *Desert Cathay*, i. pp. 520 sqq.; *Serindia*, v. Map No. 67. B, C. 3.

[9] For a very graphic and true description of the same kind of surface in the ancient sea-bed where Professor E. Huntington crossed it on his plucky journey from Kōshelangza to Altmish-bulak, see his *Pulse of Asia*, pp. 250 sq.

against each other, as if torn asunder by some force acting from below. I was unable to arrive at any clear conclusion as to their exact origin.

Arrival at eastern belt of salt Yārdangs.

It was with real relief that, after a weary tramp of twelve miles, we sighted a line of white Yārdangs far away, set off against the darker fringe of rising ground in the distance. The appearance of these salt-coated terraces was now gratefully welcomed as a sign that 'land' was near. For another five miles we had dragged ourselves painfully onwards, after which the surface of *shōr* became somewhat less hard and crumpled; and at nightfall, having marched a little over nineteen miles in all, we reached the edge of the salt-coated Yārdang belt. Here I discovered a delightfully soft patch where brown *shōr* was overlying a soil of coarse sand; the camping-place it offered was a great boon for men and beasts alike, and I felt profoundly grateful for it. I appreciated it even more when the camels arrived much belated in the dark, realizing what it meant to have escaped a night's halt on ground where neither beast nor man could have found a spot to rest in comfort. And when the next days' marches proved that we had crossed this forbidding sea of hard salt at the very point where it was narrowest, I had reason to be thankful for the indications that had led me to select this line.

Trials of camels in crossing.

One of the hired camels had broken down some miles out; the men whom I sent back from camp could not find it in the dark, and it was only brought in next morning. The feet of most of the others were cracked and sore, and the 're-soling' of the worst sufferers kept the men busy during the night, though a bitter north-east wind made the work doubly trying. The camels themselves now seemed to feel hunger more than all the rest of their trials, and could with difficulty be prevented, on the march, from eating the reed-straw off each other's saddles. As soon as they had arrived and were unloaded, they took eagerly to eating the soft salty soil. When the abandoned camel was recovered in the morning neither feeding with oil-cakes from our reserve of emergency fodder nor a fair drink of melted ice could restore the poor animal's strength. Ultimately, as it was unable, though unladen, to keep up with the rest, it had to be shot a few miles from the start. This was the only loss ever incurred on all my desert crossings.

Progress SE. through salt-coated Yārdangs.

Our march was resumed on the morning of March 2nd with the previous south-easterly bearing. It led first between salt-encrusted Yārdang ridges of the same type as those we had encountered along the opposite shore of the sea-bed. They rose from twenty to twenty-five feet and standing in closely serried lines for the first couple of miles forced us to make constant detours. The Nullahs between them showed a hard crust of salt. But its cakes were big and fairly flat, and after the preceding day's experience the going seemed comparatively easy. Farther on, the lines of Yārdangs grew wider apart, and the patches of *shōr*-covered ground between them, one hundred to two hundred yards broad, were marked only by low swellings of salty soil or small hillocks with gentle slopes. The ridges themselves all retained their wall-like appearance and showed a uniform bearing from N. 30° E. to S. 30° W. For the first four and a half miles from camp they continued to be heavily coated with *shōr*, as if they had been submerged for a long period in the salt sea. Yet the *shōr* between them grew gradually less hard, and was in places overlaid with coarse sand and a thin coat of gravel, no doubt blown down from the Sai eastwards. The ends of the ridges still adjoined so closely that passages practicable for camels had to be sought by detours.

Yārdangs growing lower.

Beyond this distance the intervals between the lines of Yārdangs grew wider and wider, and the Yārdangs themselves less heavily impregnated with salt. They were in consequence far more exposed to the erosive action of the winds, and this had left its clear mark upon them by shaping their tops into fantastic forms suggesting domes, pinnacles, &c. The ridges themselves became lower and lower as we continued our march to the south-east, and after having covered close on nine miles from Camp C. ciii, we reached with true relief the edge of a wide plain. Its level surface,

composed of soft disintegrated clay with plentiful flakes of gypsum, offered excellent going to our weary feet.

Level plain with gravel glacis to E.

The wide view obtained from our next plane-table fixing, on a low hillock about twelve and a half miles from camp, necessarily raised in my mind the question why this plain had escaped erosion, such as had produced the broad belt of Yārdangs just traversed, or alternatively why it should have been worn and levelled down so much more uniformly. The fact of the aneroid recording a steady rise distinctly supported the former assumption, without supplying the required explanation. I shall presently recur to this and some kindred geological questions suggested by the present environment of the ancient sea-bed. To the east and south-east we could now see clearly the terminal spurs of at least two separate ranges of low hills jutting out towards the great basin, with a wide gravel glacis descending at their foot. Westwards the view ranged over the vast salt-encrusted plain of the ancient sea-bed, stretching unbroken to the horizon, but edged by the Yārdang belt which we had just transversely passed through. This seemed to end south-westwards along a line of which the nearest point lay about four or five miles from where we stood. Beyond this line to the south no Yārdangs were to be seen, either now or on our farther progress.

Detour of route to NE. explained.

The fact that we had been able on the preceding day to cross the formidable obstacle presented by the salt-encrusted sea-bed by a single day's march had furnished me with an adequate and most welcome explanation why the ancient Chinese route we had successfully traced from L.J. to the 'Mesa of the coins and dagger' had followed that direction to the north-east which at first seemed so puzzling. That direction was indeed leading away at right angles from the south-westerly line which would have offered the shortest route from Lou-lan to the 'valley' of Bēsh-toghrak and thence to Tun-huang. But the great detour implied by that initial north-easterly bearing of the route had now proved amply compensated; for it reduced the very serious physical difficulties which beset the crossing of the dried-up sea-bed within limits such as Chinese perseverance and practical ingenuity in transport organization might cope with.

Question of ancient route-line.

There remained the disturbing doubt as to whether direct archaeological evidence could be found, in the utterly lifeless wastes we were crossing, that ancient traffic had actually passed over the ground where I conjecturally located its line. After our long trying marches, in a region totally devoid of resources, there still remained a considerable distance to cover with our worn-out transport before we could hope to reach drinkable water. It was therefore incompatible with due regard for my caravan's safety to spare days for that close and systematic search which alone could give reasonable hope of discovering small relics, such as had helped me to the west of the ancient sea-bed. But fortune again favoured me and came to my assistance with finds which, small as they were, sufficed to give assurance that we were still near the ancient desert track.

Finds of Han coins.

We had scarcely proceeded more than half a mile to the south-south-west of the above-mentioned low hillock when a Chinese copper coin of the large inscribed *Wu-chu* type was picked up by one of the camelmen in my presence. On continuing our march in the same direction for only two furlongs Afrāz-gul's keen eyes lit upon a spherical bead of translucent white glass, C. ciii. 05, lying on the coarse sand which here lightly covered the soil.[18] These two small objects picked up along the very line of our march raised a strong presumption that they had dropped from traffic following a route of identical or closely similar bearing. A second coin picked up within a mile and three-quarters of the first fully confirmed this conclusion; but the find was attended by a discovery which at the time was bound to exercise our minds even more by its strangeness. Niāz Pāwān, one of our two Lopliks, while searching the ground in the direction we were following suddenly noticed a man's footprints leading off to a small hillock close to the west of our route.

[18] **C. ciii. 05. Glass bead,** translucent white, spherical. Diam. ¼". Pl. XXIII.



177. AMIDST BELT OF MESAS, SOUTH OF CAMP XCIX, LOP DESERT.



178. MESA L.J., BEARING REMAINS OF RUINED WATCH-TOWER, LOP DESERT.
Man standing on top marks position once occupied by tower.



179. CAMELS CROSSING CRUMPLED-UP SALT SURFACE OF DRIED UP LOP SEA BED.



180. HEAPED-UP BLOCKS OF SALT ON SURFACE OF DRIED-UP LOP SEA BED

On tracking them with him I found an inscribed *Wu-chu* coin of the large type firmly adhering to the soil within eight yards of the foot of the hillock. There could be no further doubt now that our first march east of the dried-up sea-bed had brought us back again to ground once traversed by the ancient Han route.

Discovery of strange footprints.

Before proceeding to review the early Chinese notices referring to the salt wastes we had crossed, I may conveniently dispose here of that incident, the discovery of those footprints which so suddenly and so strangely seemed to bring us back to the world of the living. They puzzled me at first greatly, more even than my companions; for I knew from our approximate position on the plane-table that between forty and fifty miles still separated us in a straight line from Achchik-bulak, the nearest point on the caravan track to Tun-huang (Map No. 32. c. 4), and that a considerable portion of this distance necessarily lay across the great eastern bay of the sea-bed which that track skirts. The presence of this forbidding barrier excluded all thought of travellers after losing the track having erred away so far northward. It was equally impossible to assume that the footprints went back far in time; for though effaced in certain places particularly exposed to the wind, they were in general too sharply marked. The man who had made them, after ascending the hillock evidently for a look-out, had come down again. Tokhta-Ākhūn tracing his steps with the experienced eye of the hunter, soon discovered that they led back to the track of two more men accompanied by a pony and a donkey. The mysterious little party had come from the south and been apparently steering northward.

Report of caravan robbed.

It was getting too late for us to follow their track farther before pitching camp on the level clay plain two miles and a quarter beyond the hillock where we had first discovered the footprints. But while the men, by the side of the scanty fire which served to melt ice for their tea, were discussing the riddle set by the strange presence of men in this lifeless wilderness, a clue to its solution was found. Maḥmūd, the young camelman, who had accompanied Lāl Singh on his journey in December to Nan-hu and returned with him by the caravan track leading from the end of the Tun-huang Limes to Mīrān, remembered having heard from Tungans grazing near our old camp C. 155 of 1907 that some time before, probably in November, a Chinese trader, after losing *en route* practically the whole of his transport, hired donkeys from Khotan, had been robbed of three 'horseshoes' (*yambu*) in silver and a valuable pony by the three Khotanese who had contracted to take him and his goods to Tun-huang. The rogues were said to have decamped with the pony and the last surviving donkey. The Chinaman, whom they had abandoned to his fate on the desert route, managed somehow to make his way to where the Tungans picked him up in a state approaching collapse. Subsequently, towards the close of December, Lāl Singh had found confirmation of the story when he came upon the abandoned loads and fifteen dead donkeys at the brackish springs of Yulghun-bulak, about seven miles to the east of Achchik-bulak.[11]

Attempted escape of rogues.

It thus became clear that the footprints we had chanced upon were those of the faithless donkeymen. Knowing that their robbery was bound to be discovered by any caravan moving along the desert route and that their appearance at Charkhlik would likewise be noted and excite suspicion, which would lead earlier or later to their being caught by the Chinese authorities, they had evidently tried to escape with their ill-gotten 'treasure' northward and thus to reach Turfān. Even had ice already formed at the time at the brackish springs of Yulghun-bulak—Lāl Singh had found none yet when passing weeks later—they could only have carried a very limited supply of that or of water, besides food, fodder and belongings. At the point where we found their footprints their animals must have already for three days gone without water. Even with the guidance

[11] The springs are marked in Map No. 32, D. 4, but not the name *Yulghun-bulak*. I did not hear of this on my own passage in 1907.

of a map the men could not have struggled through to Kaurūk-bulak, the nearest of the salt springs in the Eastern Kuruk-tāgh, in less than three more days, and their animals must certainly have perished before that. Nor could ice have been found by them in November at Kaurūk-bulak or at any of the other salt springs farther north (Map No. 32. A, B. 2) which Lāl Singh explored in the following winter.

Probable doom of rogues.

It was thus highly probable that the ill-fated party of thieves had met in this inexorable waste with an end involving far harder retribution than human justice would have inflicted for their misdeed. Abdurrahīm, when accompanying Lāl Singh in January, 1914, to Kaurūk-bulak and the northern springs previously known only to a few daring hunters of wild camels, could find no trace of their passage. But we came upon their footprints again on the marches of the next two days, and followed them right through to the point where their track emerged on 'land' after crossing the great bay of the salt-encrusted sea-bed. At two places we found traces of their having camped or halted, and wondered whether the poor rogues had been troubled by any misgivings as to the fate which was awaiting them.

OBJECTS FOUND AT FOOT AND ON SLOPES OF MESA, SIX MILES EAST OF CAMP C. CI

C. ci. 01. Iron dagger blade and tang, with broken cross-piece at top of tang. Edges blunt; point sharp; cross-piece prob. part of guard. Rusted but strong. Length of whole 9¼", gr. width of blade ⅞". Length of tang 3", thickness $\frac{1}{16}$" × ⅜". Pl. XXIII.

C. ci. 02. Link of iron snaffle-bit (broken), with fr. of other link rusted on to it. Ring at end corroded away for nearly half its circumference. Section roughly sq. Corroded but hard. Cf. L.A. 034 (Pl. XXI); T. XXII. f. 01 (Pl. XLVII). Length 3¼", thickness of rod *c.* $\frac{3}{16}$", diam. of outer ring *c.* 1¼". Pl. XXIII.

C. ci. 03. Iron skewer with ring handle, as *Ser.* ii. p. 775, T. XII. a. 0026 (Pl. LIV); see also *ibid.*, T.W. 005, 007; T. XVIII. ii. 9. b; XXVIII. 0019. Broken in two, much corroded. Length 2¼", thickness *c.* $\frac{3}{16}$", diam. of loop 1¼". Pl. XXIII.

C. ci. 04. Solid copper ball, pierced with rectang. hole. Well preserved. Diam. ⅞", hole $\frac{3}{16}$" × ⅛". Pl. XXIII.

C. ci. 05. Copper hook of graceful curve, spatulate at hookless lower end, on back of which is stud. Recurved end narrower, but slightly thickened. Cast. Corroded through at one edge, or perhaps air-hole in casting; but condition generally good. Cf. *Anc. Khotan*, i. p. 464. D.K. 001; ii. Pl. LI. 2" × ⅜" (broad end) $\frac{3}{16}$" (narrow end). Pl. XXIII.

C. ci. 06. Small fr. of iron, corroded. ⅜" × $\frac{3}{16}$".

C. ci. 07. Fr. of marble (?), roughly cuboid, veined grey in dark pink and buff. ⅞" × ⅝" × ⅝".

C. ci. 08. Glass bead, translucent pale green, roughly rectang. with irregularly chamfered sides. $\frac{11}{16}$" × ⅝" × ½". Pl. XXIII.

SECTION IV.—THE 'WHITE DRAGON MOUNDS'

Probable continuation of ancient route.

When we reached the open plain of clay at the foot of a gentle gravel glacis where our Camp CIV was pitched on the evening of March 2nd, I knew that the most difficult portion of our journey in search of the ancient 'Lou-lan route' had been left behind us. We had come upon definite indications of ancient traffic on ground where that route was likely to have emerged from the salt wastes of the dried-up sea-bed. The configuration of the land before us to the south and east left little doubt as to the line it had subsequently pursued towards its goal, the western end of the Tun-huang Limes. From what the plane-table and our mapping of 1907 showed, it seemed certain that the early Chinese pioneers of that route had only to keep to the eastern shore of the dried-up sea, as it stretched away to the south in order to reach the mouth of the wide valley-like depression leading towards Bēsh-toghrak and the terminal basin of the Su-lo-ho (Map No. 32. C, D. 4). However far into this depression the great eastern bay of the salt-encrusted sea-bed might prove to extend—our survey of 1907 along the caravan track towards Tun-huang furnished no definite indication on this point—it was clear, from what I had then observed along the southern edge of the depression, that desert vegetation sufficient for grazing *en route*, and possibly water, might be expected also along the northern edge. It was there, skirting the foot of the barren hill range which from the north

overlooks the valley between Achchik-bulak and Bēsh-toghrak, that the ancient route from Lou-lan would find its natural and easy continuation towards the terminal basin of the Su-lo-ho and the adjoining end of the Tun-huang Limes. The most direct line, it is true, from near our Camp civ towards Bēsh-toghrak would have led through the southernmost hill range of the Pei-shan. But there, in an absolute desert of stone and gravel, neither grazing nor water could have been found. Nor would the saving in distance, being comparatively slight, have compensated for the needlessly prolonged hardships.

Chinese records of route across Salt Marsh.

Before, however, I proceed to give an account of our experiences along the former, the obvious, route, it will be convenient for us to turn back once more to the salt-encrusted wastes crossed on the preceding three marches. We may examine, in the light of the observations there made, the notices that the early Chinese records have preserved for us of the Lou-lan route where it passed the P'u-ch'ang lake or the 'Salt Marsh'. The most instructive of these notices, though not the earliest, is furnished by what Li Tao-yüan's commentary on the *Shui ching* tells us in continuation of the passage concerning the 'Town of the Dragon'. The definite topographical indications furnished in that passage have enabled us to locate this 'site' with confidence at the great belt of Mesas past which our march to the north-east of the Lou-lan area took us on February 28th.[1] The graphic account which Li Tao-yüan proceeds to give us of the region comprising the 'Town of the Dragon' may easily be proved to be similarly derived from an authority possessed of accurate local knowledge, and this justifies our dealing here with it first. The account, as rendered in M. Chavannes' extracts from the commentary, runs as follows:[2]

Li Tao-yüan's account of Salt Marsh.

'This region has an extent of a thousand *li*; it is entirely formed of salt, but of salt in a hard and solid state. The travellers who pass through it spread pieces of felt for all their domestic animals in order to make them sleep on these. If one digs beneath the surface one finds blocks of salt, big as large cushions, which are piled up one above the other in regular fashion. [In this region there are] as it were mists which rise and clouds which float, and rarely does one make out there the stars and the sun. Little is found there of living animals and plenty of demons and strange beings.'

'[That region] touches, on the western side, *Shan-shan* 鄯善 and connects, on the eastern side, with the Three Sands 三沙. It constitutes the northern limit of the lake. This is why the *P'u-ch'ang* [lake] 蒲昌 also bears the name of the "Marsh of Salt", *Yen-tsê* 鹽澤.'

Accuracy of Li Tao-yüan's description.

When previously discussing this account among the Chinese records concerning the Lou-lan Site,[3] I have indicated briefly how closely the general description here given of the region near the 'Town of the Dragon' agrees with the result of our surveys of 1914–15 of the vast area comprising the ancient sea-bed and the wastes immediately adjacent. The statement as to the ground 'entirely formed of salt, hard and solid' is completely borne out by the observations recorded above of the bottom of the dried-up sea where we crossed it. Lāl Singh, whose route lay farther north, encountered the same terrible surface of crumpled-up salt over a wider stretch of its northern extension. Of the trials encountered on this vast expanse of hard salt crust, when traversing it over a still greater distance from south to north, Professor Huntington has given a very graphic record.[4] The reference in the Chinese account to the piled-up 'blocks of salt, big as large cushions', must appeal vividly by its truthfulness to those who have had to pick their way between and across those endless hummocks and huge buckled-up cakes of hard salt and have also seen the salt blocks, pressed one above the other like pack-ice, deep down in those innumerable fissures and hollows above mentioned (Fig. 180).

[1] See above, pp. 292 sqq.

[2] Cf. *T'oung-pao*, 1905, p. 571.

[3] Cf. *Serindia*, i. pp. 424 sq.

[4] See Huntington, *Pulse of Asia*, pp. 251 sqq.

Trouble of halting on hard salt crust.

We were fortunate enough, on the line taken for our crossing, to escape the necessity of spending a night on that portion of the sea-bed which is covered with a hard salt crust. But from what I saw of that surface I could realize how little chance there was that even hardy camels, to say nothing of other transport animals, could secure on it a minimum of rest and comfort during halts. Professor Huntington mentions how his small party had to hew down with the axe hummocks of rock-salt a foot high in order to get places smooth enough for sleeping.[5] And Lāl Singh's party had the same trying experience at their Camp 89. Thus the precaution of spreading pieces of felt for their animals to lie down on would obviously suggest itself to wayfarers of old, when benighted on such ground, practical as Chinese are in arranging devices of this kind when travelling. The reference to this custom is also of value because it clearly establishes the fact that the ancient Lou-lan route, the only one which offered occasion for such a practice to grow up, led across the dried-up sea-bed and did not merely skirt it on the north.

Prevalence of dust haze.

What we read in Li Tao-yüan's account about the mists and clouds which rarely allow the stars and the sun to be seen in that region, is entirely in keeping with the atmospheric conditions that prevail over the whole Lop basin for the greater part of the year. The hazy skies that we experienced there between December and March are a direct result of the winds which almost constantly sweep across these great wastes. Whether blowing from the east-north-east, their most frequent direction, or from any other quarter, they necessarily carry with them fine dust, the product of ceaseless erosion carried on over the soil of the surrounding regions. This in the barren hills to the north and east and in far the greater portion of the sandy plains westwards is wholly unprotected by vegetation. During the spring and summer the region in the centre of the Lop basin is inevitably swept at frequent intervals by violent Burāns bringing thick clouds of dust, and rain or snow such as would clear the atmosphere for a time must be there of extremely rare occurrence.

Terror of lifeless waste.

That the old Chinese travellers across these dismal wastes were struck by, and made special note of, the absence of animal life is easily understood. It was impressive even for us who had already passed through a dead land in Lou-lan. This, in the times of the ancient traffic, still held life in its riverine belts of jungle, as well as in its scanty cultivated area. It is equally natural to find that the imagination of those early Chinese wayfarers peopled those forbidding wastes with 'plenty of demons and strange beings'. As I have had occasion to point out elsewhere, the same superstitious fear of the dangers from evil spirits haunting such ground clung to the southern route past the Lop basin, in the times of Hsüan-tsang and Marco Polo. This fear is as lively now as ever.[6]

Correct topography of Li Tao-yüan's account.

Coming now to the concluding remark of Li Tao-yüan's notice, we readily recognize in it definite indications of correct topographical knowledge. We have seen that the region in which the 'Town of the Dragon' was located comprised the whole of the ancient salt-encrusted sea-bed and the desert ground adjacent to its shores. Keeping this in view, it is easy to prove the correctness of the statement that this region 'touches, on the western side, Shan-shan and connects, on the eastern side, with the Three Sands'. A glance at the map shows that the westernmost extension of the sea-bed reaches the present Kara-koshun marshes and therefore the vicinity of the Mīrān tract (Map No. 30. c, d. 1), where one of the chief settlements of ancient Shan-shan was situated.

'Three Sands' located.

As regards the 'Three Sands', I have proved, I think, elsewhere that the locality meant is that which in the *Wei lio's* account of the 'route of the centre' is referred to as the desert of the 'Three

[5] See Huntington, *Pulse of Asia*, p. 251.

[6] Cf. *Serindia*, i. p. 293; ii. pp. 560 sqq. See also Yule-Cordier, *Marco Polo*, i. pp. 196 sq., 201 sq.

Ridges Sands', *San-lung sha* 三 龍 沙.[7] The reference in the *Wei lio* makes it clear that these designations were applied to the northernmost offshoots of a belt of high sand dunes which the caravan track coming from Tun-huang crosses, just as did the ancient Lou-lan route, a short distance to the north-east of Bēsh-toghrak (Map No. 35. B, C. 4). Now our surveys of 1914 have established the fact that the big south-eastern bay of the ancient sea extended continuously within the 'Bēsh-toghrak valley' as far as the vicinity of Yantak-kuduk (Map No. 35. A. 4). Thence a succession of *shōr*-covered areas or actual salt bogs extends in the same depression close to the west of the wells of Bēsh-toghrak (Map No. 35. A. 4; B. 3, 4). The accuracy of the statement in our passage as to the limits of the region with which we are concerned is thus vindicated by plain topographical facts.

Extent of 'Salt Marsh' region.

It is not possible for us to test in the same conclusive fashion the statement made at the beginning of the passage: 'This region has an extent of a thousand *li*;' for we are not definitely told the direction to which this measurement applies. But it is certainly noteworthy that the recorded estimate agrees remarkably well with the distances measured along either of the two possible routes by which a traveller starting from the northernmost point of the 'Three Sands', east of Bēsh-toghrak, could attain the nearest habitable ground beyond the western extremity of the sea-bed. As long as the Lou-lan area received water from the Kuruk-daryā and was capable in places of human occupation, the western edge of the great salt waste which the Chinese knew by the name of *P'u-ch'ang* or *Yen-tsê*, 'the Marsh of Salt', might be reached at two different points, either by proceeding to Lou-lan by the 'route of the centre' or else by following the still practicable caravan track to Mīrān along the southern shores of the sea-bed.

Li Tao-yüan's distance estimate.

Now the aggregate of my marches, as measured by cyclometer from L.J., the last outpost of Lou-lan, to the northernmost of the 'Three Sands' east of Bēsh-toghrak, along what I believe to have been the approximate line followed by the 'route of the centre', amounted to 199 miles.[8] If the traveller were to start from the same point east of Bēsh-toghrak and to take the southern route still followed by caravans between Tun-huang and Mīrān, a total marching distance of practically identical length, as measured by us with the cyclometer in February, 1907, viz. 198 miles, would bring him to Camp 143 of our second journey. Near this we came upon the extreme south-western edge of the hard salt crust area of the ancient sea-bed. From there to the west towards Mīrān, desert vegetation in gradually increasing proportion is found along the track, and the region of bare salt, clay, or gravel is definitely left behind.[9] Experience gathered on my explorations in the Tārīm basin and adjacent regions has abundantly proved that one mile there may ordinarily be reckoned as equivalent to 5 *li* in Chinese records of distances over level ground.[10] Thus from whichever of the two routes the measurement of a thousand *li* might have been derived by Li Tao-yüan's authority, this estimate of distance would appear surprisingly correct.

Li Tao-yüan on 'N. limit of lake'.

For two reasons it seems to me more probable that the recorded estimate of extent was taken from the Lou-lan route. In the first place the whole of the topographical data mentioned in Li Tao-yüan's notice relates to the ground traversed on this route.[11] Secondly, we have in the conclud-

[7] See *Serindia*, i. pp. 418, 425; ii. pp. 555 sq.

[8] In this reckoning due allowance has been made for the detour implied by our having proceeded from Camp cvii first to the route on the southern side of the Bēsh-toghrak valley and having followed this as far as Yantak-kuduk (Map No. 35. A. 4) instead of moving direct to Bēsh-toghrak; see below, pp. 317 sq., 321 sq.

The distance of 230 miles indicated in *Serindia*, i. p. 425, note 38, referred to the marches from Camp c to Camp cxii, farther to the east of Bēsh-toghrak, and made no allowance for the detour between Camps cvii and cx.

[9] See Map No. 30. B, C. 2.

[10] Cf. *Serindia*, ii. p. 735, with the references quoted in note 28 a.

[11] The reference to travellers *crossing* the area encrusted with hard salt is certainly significant. On the southern route it is only skirted.

ing passage the distinct statement that the region in question 'constitutes the northern limit of the lake'. This will be fully understood if we keep in view the fact that now, as formerly, those very limited portions of the ancient sea-bed which still hold patches of salt marsh, with soft boggy ground or with open streaks of salt water, are to be found along the southern shore of the otherwise dried-up basin.[12] It must be remembered also that the terminal marshes of the Tārīm represented by the present Kara-koshun can be shown to have already occupied in early historical times the south-western extremity of the basin, and that those once formed by the Kuruk-daryā delta, the 'Yu marshes' of Li Tao-yüan, similarly extended into the south-western portion of the basin. Thus Li Tao-yüan's authority was fully justified in describing the region of the 'Town of the Dragon' and the great waste of hard salt crust eastwards as 'the northern limit of the lake'.

'Route of the centre' in *Wei lio*.

From Li Tao-yüan's interesting account we may turn next to the notice which is nearest in time and, though brief, has the merit of clear topographical sequence. It is contained in the record which the *Wei lio*, composed between A.D. 239–65, supplies of the 'route of the centre', leading from Tun-huang past 'ancient Lou-lan' to the great northern highway of the Tārīm basin. This important record, which M. Chavannes' translation first rendered accessible, has been fully analysed and discussed in *Serindia*.[13] It will therefore suffice to quote the passage concerning this route, while restricting my comments, except those on the locality which directly interests us here, to a brief indication of the identifications there established or proposed. The passage runs thus: 'The route of the centre is the one which starting from *Yü-mên kuan*, sets out on the west, leaves the well of the Protector General 都護井, turns back at the northern extremity of the *San-lung* ('Three Ridges') Sands 三龍沙, passes the *Chü-lu* granary 居盧倉; then, on leaving the *Sha-hsi* well 沙西井, turns to the north-west, passes through the *Lung-tui* 龍堆 ('Dragon Mounds'), arrives at the ancient *Lou-lan* 故樓蘭.'

Localities in *Wei lio* itinerary identified.

Even though this itinerary lacks those indications of distances between the several stages which would have been very helpful, the certainty acquired in the course of my explorations as regards the starting and terminal points and the guidance afforded by the recorded bearings made it possible for me, when discussing the passage in *Serindia*, to locate the intermediate stages mentioned with great probability. Starting from Yü-mên kuan, the famous 'Jade Gate', the position of which in Han times near the ruined fort T. XIV of the Limes west of Tun-huang is established beyond doubt,[14] the 'route of the centre' followed the Limes line westwards, just as the present caravan track does, to its extreme end near the watch-towers T. IV. a, b. There I place the 'well of the Protector General'.[15] As regards the 'Three Ridges Sands', the evidence furnished by the actual configuration of the ground, by the reference to the route which there 'turns back', and by the very name, makes it practically certain that we have to place them at the northern extremity of a belt of high dunes crossed by the present caravan route to the east of Bēsh-toghrak.[16] It is at or near the last-named important halting-place that I consider that the 'Chü-lu granary' was probably situated.

Location of *Sha-hsi* well.

For the location of the *Sha-hsi* well we are afforded valuable help by the statement that the route on leaving it turned to the north-west. Reference to the map clearly shows that the route coming from Bēsh-toghrak must have kept to the northern edge of the Bēsh-toghrak valley, in order to avoid the troublesome and needless crossings of the large eastern inlet of the dried-up sea. It had then, in order to reach Lou-lan, necessarily to turn to the north-west at the western

[12] See Maps Nos. 30. D. 1; 32. C. 4; 33. C. 1; below, p. 318; *Desert Cathay*, i. pp. 507 sqq.

[13] See Chavannes, *T'oung-pao*, 1905, pp. 552 sqq.; *Serindia*, i. pp. 417 sqq.; ii. pp. 555 sqq.

[14] See Map No. 35. D. 4.

[15] See Map No. 35. C. 4.

[16] See Map No. 35. B, C. 4.

extremity of the hill range which overlooks the valley and inlet from the north (Map No. 32. c. 4). When describing below our actual progress eastwards along the foot of that range, I shall have occasion to indicate the direct archaeological evidence that the ancient route kept close to it. On the gradually widening strip of ground which separates the edge of the dried-up bay with its hard salt crust from the clay cliffs and plateaus marking a geologically still more ancient shore line, we came first upon living vegetation on sandy soil near Camp cvi, and this became plentiful some miles beyond it eastwards. Water, too, could be found there at no great depth from the surface, though it proved salt. It is in this vicinity that we have in all probability to look for the position of the *Sha-hsi* well, where travellers from the side of Tun-huang would find grazing and, at a time when 'desiccation' was less marked, even drinkable water, before having to face the absolute waste of salt and bare clay towards Lou-lan. It is only up to this point that drift-sand would be found by them along the foot of the hill range, and I have pointed out in *Serindia* that this topographical feature may well have suggested the designation *Sha-hsi* 沙 西 井, literally meaning 'the well west of the sand'.[17]

'Dragon Mounds' of *Wei lio* itinerary.

Beyond this stage the *Wei lio's* itinerary mentions only a single locality on the way to Lou-lan, but one of special interest to us. After turning to the north-west the route, we are told, 'passes through the *Lung-tui* (Dragon Mounds), arrives at the ancient *Lou-lan*'. In *Serindia* I have already expressed the belief that in these 'Dragon Mounds' we must recognize those arrays of salt-impregnated Yārdang ridges which, as our surveys between Camps ci and civ have shown, extend on either side of the north-eastern portion of the dried-up sea-bed.[18] They certainly form the most striking feature of the great dismal waste which separates the foot of the hills bounding the eastern rim of the Lop basin from the nearest confines of what was once the habitable territory of Lou-lan. Their identification with the 'Dragon Mounds' of the *Wei lio* is directly supported by topographical evidence contained in an interesting passage of the Former Han Annals.

'White Dragon Mounds' of Former Han Annals.

In the account which the chapter of the Annals dealing with the 'Western regions' devotes to the relations of China with the territory of Shan-shan or Lou-lan, there is an instructive reference, in connexion with events following the year 92 B.C., to the desert route leading from it to China.[19] 'Now the extreme eastern border of the kingdom of Lou-lan where it approached nearest to China, was opposite to the *Po-lung-tui* 白 龍 堆 ('White Dragon Mounds'), where there was a scarcity of water and pasture; and it always fell to its share to provide guides, to carry water and to forward provisions to meet the Chinese envoys; but being frequently exposed to the oppressive raids of the soldiery, they at last resolved that it was inconvenient to hold intercourse with China.'

Location of 'White Dragon Mounds'.

This passage makes it perfectly clear that the name *Po-lung-tui*, 'White Dragon Mounds', the identity of which with the *Wei lio's Lung-tui*, 'Dragon Mounds', was duly recognized by M. Chavannes, was applied by the Chinese to a desert tract facing the extreme eastern confines of Lou-lan territory and situated on the direct route leading to the latter from China. We have been able in the light of direct archaeological evidence to trace that route from the easternmost habitable ground of Lou-lan to the belt of salt-coated ridges which lines the north-western shore of the sea-bed. We can now fully comprehend why it was necessary for the Chinese missions arriving on that ground, then as now utterly devoid of means of sustenance, to be met there by guides and to be furnished with supplies and above all with water. We can appreciate also what a tax the provision of all these necessities for safe transit must have thrown upon the scanty population of Lou-lan.

[17] Cf. *Serindia*, ii. p. 557, note 20.

[18] See *ibid.*, i. pp. 340 sqq., 419.

[19] See Wylie, *J. Anthrop. Inst.*, x. pp. 27 sq.; for the name *Po-lung-tui*, cf. Chavannes, *T'oung-pao*, 1905, pp. 529, 531.

'Dragon-shaped mounds' salt-coated Yārdangs.

That the Chinese designation of 'White Dragon Mounds' was directly derived from those salt-coated Yārdang terraces through which the Lou-lan route had to pass on either side of the level plain of hard salt crust is conclusively proved by a passage which M. Chavannes in his notes on the *Wei lio's* account of the 'route of the centre' has quoted from Mêng K'ang's 孟康 commentary on the *Ch'ien Han shu* composed in the third century A. D.:[20] 'The dragon-shaped mounds have the appearance of the body of a dragon in earth which was without a head but had a tail. The highest rise to two or three *chang* (twenty or thirty feet); the lowest to over one *chang* (ten feet). All of them are turned towards the north-east and resemble each other.' We have here as accurate and graphic a description of these strange white ridges as an intelligent Chinese traveller might give to-day. After what I have stated above as to their fantastically twisted shapes, and yet uniform direction, we can well understand that Chinese eyes, ever keenly observant of peculiar topographical features, should find in them a resemblance to white dragons. The commentator's statements as to the north-easterly bearing and the average height of the 'mounds' are perfectly correct and obviously derived from an authority conversant with the ground.

Obstacles to ancient traffic.

The passage of the Former Han Annals is moreover of special interest because it reflects in a striking fashion the exceptional difficulties which must have attended the movement of large Chinese missions, convoys and bodies of troops, by a route leading across so great a stretch of utterly barren ground and presenting formidable natural obstacles. How traffic of considerable magnitude was maintained for centuries over such a route in the face of all its hardships is a problem to which I shall have occasion to return farther on.[20a] But here already we may note that another significant reference to the 'White Dragon Mounds', to be found in the *Ch'ien Han shu*, is directly due to the seriousness with which those difficulties made themselves felt long after the first opening of the Lou-lan route.

Reason for opening 'new route of north'.

In a subsequent section of the 'Notes on the Western Regions' the Former Han Annals tell us of a new route made during the Yüan-shih period (A. D. 1–5) from the side of Posterior *Chü-shih*, 車師, i. e. from the territory of present Guchen (Ku-ch'êng-tzŭ), north of Turfān, 'which, passing north of *Wu-ch'uan* 五船, penetrated as far as the *Yü-mên* 玉門 barrier; the journey was thereby reduced. The Wu-chi-hsiao-wei Hsü P'u-yü had opened [this route] in order to shorten the length of the road by one-half and to avoid the dangers of the *Po-lung-tui* 白龍堆 (White Dragon Mounds).'[21] We find an exactly corresponding reference to the avoidance of the *Lung-tui* as well as of the *San-lung sha*, the 'Three Ridges Sands', in the itinerary which the *Wei lio* gives of this 'new route of the north', established as an alternative to the 'route of the centre' or the Lou-lan route.[22]

Chinese dread of 'White Dragon Mounds'.

The topography of this 'new route' to the Western regions which led from the Jade Gate north-westwards across the desert ranges of the Western Pei-shan has been fully discussed in *Serindia*.[23] I have also called attention there to the very serious natural difficulties which, owing to the absence, or at least extreme rarity, of water and grazing, must have likewise beset this route even in ancient times. These have made it, probably owing to the increase of aridity, altogether impossible for regular traffic at the present day. That such a route had to be opened up and followed in preference to that through Lou-lan, mainly in order to avoid the obstacles presented by the 'White Dragon Mounds', is perhaps the best illustration of the dread in which the ancient

[20] See Chavannes, *T'oung-pao*, 1905, p. 529, note 7.

[20a] Cf. below, pp. 337 sqq.

[21] See M. Chavannes' rendering, *ibid.*, p. 533, note 1; also Wylie, *J. Anthrop. Inst.*, xi. p. 109.

[22] See Chavannes, *T'oung-pao*, 1905, p. 533. Incidentally it may be pointed out that this mention of the *Lung-tui* by the *Wei lio* in the same connexion as the *Po-lung-tui* by the *Ch'ien Han-shu* supplies direct proof that both designations refer to the same locality.

[23] See *Serindia*, ii. pp. 705 sqq.

Chinese wayfarers must have held these repellent belts of salt-coated terraces and the equally trying sea-bed between them.

That the name *Po-lung-tui* was applied also to an area much wider than that actually covered by those 'dragon-shaped' white terraces was rightly recognized by M. Chavannes when discussing the mention made of them in the *Wei lio*, though the absence of adequate geographical data would not allow him to locate them correctly. This wider application is proved by the passage quoted by him from the Former Han Annals, which says: 'straight to the west of Tun-huang, outside the barriers (*kuan*) [of Yü-mên and Yang] there is the *Po-lung-tui* desert 白 龍 堆 沙 and the lake *P'u-ch'ang* 蒲 昌 海'.[24] The reference shows that the geographical knowledge of Han times placed side by side, as they are in reality, the two areas, corresponding to the dried-up portion of the old sea-bed and to that still containing marshes. But by itself the passage would not help us to locate the 'White Dragon Mounds', and as it is the only other reference to them that I am able to trace in the texts accessible to me, we may turn now to the antiquarian question still left open, viz. as to where exactly the 'route of the centre' is likely to have passed through the *Po-lung-tui*.

Wider application of term *Po-lung-tui*.

This question, which the textual references do not help to settle, is equally incapable at present of definite solution by the available archaeological evidence. But if we carefully compare the latter with the topographical facts as our surveys recorded in Map No. 32 show them, we may, I think, arrive at certain conclusions considerably restricting the limits within which the line of the ancient route is to be looked for. Good fortune—or was it, perhaps, more than that?—had made us come upon unmistakable relics of ancient traffic just at those points where the route coming from Lou-lan entered the western belt of salt-coated terraces and again where it passed out of the eastern belt. I refer to the finds of Han coins, the dagger and other small objects at the Mesa to the east of Camp ci, and to our discoveries where we emerged from the Yārdang belt on the eastern side of the dried-up sea and approached Camp civ.

Ancient passage through *Po-lung-tui*.

Looking at the configuration of both Yārdang belts on either side of the sea-bed, as our survey shows them in Map No. 32. B, C. 3, it is easy to realize that if we had continued on our eastern course from the above-mentioned Mesa to the edge of the Yārdang belt and had thence struck across the sea-bed with a bearing approximately south-by-east, we should have been moving on a line which would have brought us straight to the place of the first coin find on the eastern side. On this line, the edge of the opposite Yārdang-belt with its far easier going could be reached by a crossing of the difficult expanse of hard salt only a couple of miles longer than our actual crossing between Camps cii and ciii. At the same time the total marching distance would be greatly reduced as compared with our circuitous route farther north. This saving is obvious from the map and could scarcely be less than fifteen miles. On the other hand, a course from the same assumed starting-point with a more southerly bearing would certainly have considerably lengthened the extent of that trying surface of salt crust which travellers by the ancient route had to cover. For our survey shows that the eastern belt of 'Dragon Mounds', with the far softer *shōr* between them, ends close to the south of the line previously indicated, and that beyond it the salt-encrusted sea-bed steadily widens.

Possibility of more direct route line.

It would have been quite impossible for me, for obvious practical reasons, to turn back from Camp civ in order to search for traces of the ancient route where it was likely to have entered the Yārdang belt to the west or north-west of our last coin finds. But when a year later the opportunity offered of letting Afrāz-gul carry out supplementary surveys to the east and south-east of the once

[24] Cf. *T'oung-pao*, 1905, p. 531, end of note 7.

habitable territory of Lou-lan, I specially directed the Surveyor to revisit the ground where we first struck the salt-coated Yārdangs on the western coast of the dry sea-bed. Its vicinity was to be carefully searched by him for any features which might throw light on the direction here followed by the ancient route.

Afrāz-gul's search for ancient crossing of sea-bed.

As Afrāz-gul's diary shows, he reached the Yārdang belt to the east of the Mesa where we had found relics of ancient traffic in the shape of Han coins, a dagger, &c., on February 22, 1915, after two marches from Altmish-bulak. Having made his way south-eastwards between the salt-coated Yārdangs, he found a patch of open clayey ground half a mile from the well-marked western shore of the sea-bed and pitched there his Camp ccxxxviii. a (Map No. 32. B. 3). On the same day he made sure of the exact relative position of his camp by searching the ground to the north-west until he reached and identified the find-place of the previous year at the Mesa marked on the map and situated about three miles from his camp. On the following morning, leaving his camp where it stood, he proceeded to the north-north-east, with a single companion, and came upon the footprints of my camels where, about three miles east of that Mesa, we had changed our direction to the north-east.[23] Thence he turned eastwards to reach the shore of the open sea-bed. He had moved only one mile in this direction when he found on the *shōr*-covered ground a number of small fragments of oxydized iron, evidently the last remains of a completely decayed implement, C. ccxxxviii. a. 02–6. Discovered in the direct continuation of the line which had led us from Camp ci to the find-place of the Han coins, dagger, &c., these insignificant fragments can confidently be recognized as relics of the ancient traffic which had passed there.

Survey of W. shore of ancient sea-bed.

Two miles farther to the east Afrāz-gul arrived at the last line of Yārdangs overlooking eastwards the open expanse of hard salt crust. The slope descending to it from the plateau-like ground which bears the *shōr*-covered Yārdangs was very marked, and Afrāz-gul subsequently estimated the difference of level at this spot between the flat floor and the shore-line of the dried-up sea-bed at about seventy feet. In contrast to the salt-coated terraces he had passed through, which rose from twenty to thirty feet and more, he noticed from this point that the Yārdangs fringing the sea-bed far away in a north-easterly direction were all small and apparently clear of *shōr*. It did not occur to him at the time that the ancient route might have followed this easy stretch of the coast-line for some distance to the north-east before striking across the salt sea-bed. Accordingly he did not himself reconnoitre in that direction, but merely directed Abdulmalik, his companion, to proceed there, while he himself was busy with the plane-table and subsequently with prospecting to the south-west, in which direction their farther progress was to lie. Abdulmalik rejoined him after a time without having found any more traces of the ancient route. How far his search had actually extended remains doubtful. Those few fragments of iron remain, therefore, for the present the last indication of the line which the route from Lou-lan probably followed before its passage across the dried-up sea.[24] And here we may take our leave of the 'White Dragon Mounds' and resume our search for the old Chinese route over the easier ground to the east.

[23] See above, p. 298.

[24] I may note here that Afrāz-gul, in accordance with my directions, marked the point from which he had surveyed the shore of the dried-up sea with a cairn, depositing a record below it. This may help a future explorer to verify details.

CHAPTER IX

TO THE SU-LO-HO DELTA

Section I.—BY THE EASTERN COAST OF THE DRIED-UP SEA

Much of the night at Camp civ had to be spent in treating the camels, all of which were now beginning to show signs of suffering severely from their long fast. In view of their condition and of the trouble caused by the need for frequent re-soling, I was glad to continue our march to the south-south-east. This course offered the hope of avoiding inlets of the sea, with their hard salt crust, and of keeping to the slightly higher ground with its easy going. After covering about five miles over decomposed clay showing flakes of gypsum, we crossed a wide depression covered by salt-coated gravel and then passed on to a stony Sai. Ledges of disintegrated rock, apparently composed of reddish chalk and quartz, cropped out above it. The ground became increasingly stony as we approached, after eight miles' march, a low but conspicuous ridge, the last offshoot of a hill chain descending towards the sea basin from the ENE. Similar decomposed ridges separated by depressions were in sight ahead.

March over stony Sai.

As the ancient route must obviously have avoided such broken ground I changed now our bearing to SSW. so as again to keep closer to the edge of the dried-up sea which the route was more likely to have skirted. As we passed along the stony ridge above referred to, which rose about a hundred feet above the level of the adjacent Sai, we came upon two small and roughly built cairns at the point marked on the map (No. 32. c. 3). On the larger of them lay the much-weathered remains of some animal's horn no longer recognizable. Near them there was a small triangle laid out on the ground with stones, pointing towards the west. It seemed difficult to ascribe great antiquity to this rough mark, and still more so to account for its presence on ground which for centuries past could have attracted neither travellers nor hunters. From the ridge we could see the greyish plain of hard salt crust extending westwards to the horizon, as boundless as the open sea; its shore-line, which was free from Yārdangs, approached within a distance of about two miles.[1] To the east groups of bold peaks were now clearly to be seen, continuing towards the ENE. the line of the headland towards which our course had been shaped since we had emerged from the belt of Yārdangs. I had taken this headland, the elevation of which was indicated by the clinometer as ranging from 3,210 to 3,840 feet, for the promontory overlooking the entrance to the great eastern bay along which we were to make our way to Bēsh-toghrak. The sight of those bold peaks in line with it, rising, as subsequent readings showed, to about 4,700 feet (Map No. 32. d. 4), now fully confirmed that conclusion.

Cairn found on ridge.

Descending the gentle slope of the stony Sai below the ridge with the cairns, we struck, at a distance of twelve miles from camp, an inlet of the sea-bed. After crossing this, we found ourselves once again on the track of the thieves, which we had lost soon after leaving camp. It was running straight from the terminal headland above mentioned, and thus showed us plainly the direction towards Yulghun-bulak, the point where the rogues had struck off from the caravan track. To

March along Sai above sea-bed.

[1] In Map No. 32. c. 3, by a draughtsman's error which escaped attention, the contour line south of C. civ has been carried too far west, instead of curving round the 'depression with salt-coated gravel'. The area marked with symbols of hard salt crust should have been extended about two miles farther east.

the men this *oghre-bĕrgan yol* (' thief-granted path ') seemed to give great assurance. A couple of miles beyond we crossed another narrow inlet of the sea-bed which seemed to continue some little distance farther ' inland '. The remainder of the day's march, amounting to a total of twenty-one miles, lay over gently rising ground of detritus with low outcrops of decomposed slate here and there, producing little swellings and hummocks. Westwards from our track, at a distance of four to five miles, the edge of the level salt waste was to be seen, stretching away quite unbroken to the horizon. At two points we crossed the footprints of a wild camel; they seemed to lead away from the foot of the hills towards the dry sea-bed. According to Tokhta-Ākhūn even its trying crust of salt does not deter the wild camels from covering great distances at the rutting season.

The morning of March 4th broke with a close hazy atmosphere, foreboding the approach of a Burān. It had become painfully obvious that we must bring our camels as soon as possible to ground where they could find something with which to allay their hunger. The straw from the last few saddles that we could spare, as no longer needed for loads, had disappeared in a moment down their gaping mouths. We therefore felt encouraged when the first three miles' march across a stony Sai broken by low ribs of decomposed slate brought us to a depression holding two small tamarisk bushes. Though stunted in growth, they were still alive and had evidently supplied the thieves, who had camped there, with a little fuel. After another three miles and a half their track turned off to SSW. towards the last sharp-browed offshoot of the Sai. This evidently had served them as a landmark when they crossed the great dry bay.

Northern shore-line of bay struck.

The sea of *shōr* westwards was fully in sight here, though its coast, where the old route had probably lain, and the bay southwards were hidden from us by the headland. But knowing that the bay lay now close in front of us, and wishing to shorten our way along its northern shore, I now changed our course to the south-east. For about two miles we crossed a gentle glacis of white gravel, curiously suggesting approach to a sea-coast. We then suddenly found ourselves on the brink of steep clay cliffs rising about a hundred and twenty feet above the sea-bed. This stretched away unbroken to the south, south-east, and south-west as far as the eye could reach, like a petrified brownish-grey sea. The low marshy shore about Achchik-bulak on the opposite side of the bay, some twenty miles away, was invisible, evidently lying below the horizon. Nor could I anywhere discover with my glasses those strings of high Mesas which, as I knew from our survey of 1907, rise near the caravan track between Achchik-bulak and Kum-kuduk (Map No. 32. D. 4).

Progress along foreshore.

The easier gradient in a small gully cut into the cliffs allowed us to bring the camels down safely to a strip of gravel, about a hundred yards wide, which stretched along the foot of the cliffs and formed the foreshore of the dried-up bay. Progress eastwards along this was easy, and produced all the sensations of a tramp by a real sea, with the billowy surface of hard salt stretching away unbroken to the horizon. Three miles from where we had descended we passed a bold bluff projecting from the line of cliffs. Beyond this the hill range above us gradually rose in height and the coastal cliffs were broken here and there by dry drainage channels. No trace of vegetation was to be seen in any of them. At a point about two and a half miles beyond the bluff we came upon the first evidence that the ancient route had followed this easy foreshore. It was a carnelian bead, C. cv. 02, which evidently had suffered prolonged corrosion on the wind-swept ground. It was picked up under my eyes by Tokhta Ākhūn.

Narrow track noticed.

As we followed this foreshore farther eastwards the hunter's attention as well as mine was caught by an unmistakable narrow track impressed into the gravel. By its side led a wild camel's recent footprints. We could trace it without any difficulty for over a mile, running on both over the gravel and the small intervening patches of *shōr*. Then we lost it where the line of cliffs curving

off to the north-east marked a bight of the coast-line, at a point seventeen miles from camp. This strange well-trodden track cropped up again towards the end of the march, and beyond it also. It puzzled us greatly at first until the increasing number of camels' footprints running along it farther on convinced both Tokhta Ākhūn and myself that it must have been trodden by wild camels moving along this line for a long time past. It pointed to visits paid by them to the eastern Kuruk-tāgh from their present haunts along the terminal Su-lo-ho and in the Bēsh-toghrak valley.

Possible explanation of track.

Tokhta Ākhūn however declared that he had never seen such a regular track used by wild camels except where it leads close to water, and from that we were still far away. I well remember how the ancient track left in the gravel by the movements of Chinese patrols along the wall of the Tun-huang Limes has remained traceable to the present day.[2] I have accordingly wondered at times whether the wild camels' use of a regular track here, on ground where the nearest open water is fully sixty miles away, may not have been induced in the first instance by the convenience which a path made by man afforded, and been subsequently continued through the ages. Such an explanation must, of course, remain purely conjectural. I may, however, mention that Abdurrahīm, who had also noticed the old well-marked track where he and Lāl Singh's party reached the northern edge of the great bay, put upon it the same interpretation quite independently, when I questioned him on the subject after our reunion at Kum-kuduk.

Trace of ancient route recognized.

But a still more curious observation awaited us. I realized, on sighting a promontory far ahead to the east, that following the shore of the bight above mentioned would involve a considerable detour. So I decided to steer straight for a hillock rising within the bight of hard *shōr* half a mile farther on and in the direct line of that promontory. My hope of finding a better surface beyond it was disappointed. But when I had ascended with Afrāz-gul and Tokhta Ākhūn the salt-encrusted hillock, about twenty feet high, my eye was caught at once by a broad and absolutely straight line running across the hard salt surface from the western end of the bay towards the previously sighted headland. My companions, too, clearly recognized the line which passed close to the south of the hillock. It was obviously the line of the ancient Han road cutting off the detour round the bay, and its trace was as clear as only this peculiar ground could preserve it.

Ancient track followed.

Tokhta Ākhūn was sent back to take the camels round by the shore, and then, having fixed our position on the plane-table, I followed the ancient track with ease as the depression of the surface marked it clearly. It at once brought back to my mind the appearance of the present caravan track towards Tun-huang, where it cuts across the big bight on the southern shore of the Lop Sea beyond Chindailik.[3] Together with Afrāz-gul I repeatedly measured the track and found that it showed a fairly uniform width of twenty or twenty-one feet. Its surface was sunk about a foot below the average level of the adjoining crumpled-up salt-cakes and offered tolerably good going; for within the track the salt-cakes were either much worn down or were covered with a layer of soft *shōr*. This smoother state of the surface must have resulted in the main from the grinding effect of heavy traffic, much of it probably in carts. But comparison with the surface noticed in shallow drainage channels passing into the *shōr* from the hill-side at other points of this coast-line suggested another explanation: an occasional accumulation of flood water in the worn-down track, rare as it must be, may have contributed to produce its present appearance.

Straightness of ancient track.

We were able to follow the straight track of the ancient route, thus fortunately traced here, without a break for two miles to where it met the clay promontory already referred to, at the eastern end of the bay. This headland, on close approach, proved to be broken up into a series of wind-eroded terraces, much after the fashion observed at the end of the Sai tongues projecting into the

[2] Cf. *Serindia*, ii. pp. 636 sq., 682.

[3] See *ibid.*, ii. pp. 549 sq.; *Desert Cathay*, i. p. 507.

terminal basin of the Su-lo-ho.[4] Beyond it the height of the line of cliffs diminished. The plateau-like ground above them was cut up by narrow ravines which undoubtedly were due to erosive water action. Along this ground the shore curved but little, and no further indication of the old route could be traced on the stretches of hard salt crust adjoining. But quite close to the termination of the ancient track across the bay, one of the camelmen picked up below the cliffs a neatly made bronze tag, C. cv. 01 (Pl. XXIII), with rivets, which had evidently once been fastened to the end of a leather strap or cord. Here again was welcome evidence of the ancient traffic that had followed this route. It was curious to observe that for about half a mile from the same point eastward the foot of the eroded terraces was skirted by a well-marked bank of raised ground about twenty feet wide and at a level about three feet above the shore, along which it stretched in a fairly straight line. I could not arrive at any definite opinion about it, but may mention that for most of its length the previously noted track of wild camels kept with striking regularity close by its side.

First reeds reached.

The men with the camels took to this 'road', which seemed so well trodden, with increased confidence, and their brave worn-out beasts had their reward when, after having covered fully twenty-two miles, we arrived at the extreme end of a narrow strip of sandy soil fringing the foot of the eroded plateau and supporting scattered tufts of reeds (Fig. 183). Very scanty as the grazing was, it was a great boon for the camels. A violent Burān coming from the south-west broke upon us as soon as camp was pitched, and made the night trying for us men. Yet my relief was great that we had carried our search for the ancient route safely past the formidable obstacles that the shores of the dried-up sea had presented.

Vegetation and near subsoil water.

On the morning of March 5th a heavy haze hung over the great bay, and at first scarcely allowed us to make out the nearest peaks on the hill range above us. Not feeling certain where vegetation might be found again farther on, we made a late start for the sake of the camels. We noticed, to our relief, after a march of a couple of miles under the coastal cliffs, that the patches of reed-beds grew wider. Next a few tamarisks, some alive, some dead, appeared on isolated sand-cones to the south. After three miles of march we also came upon thorny scrub, and half a mile farther on the surface of the sandy soil showed signs of moisture. I had a well dug near a reed-covered little sand hillock; it yielded plentiful water at a depth of only four feet, but it was very salt, probably owing to a hard crust of *shōr* which was struck there. As it was from hunger far more than from thirst that the camels were suffering, and as there was still an ample reserve of ice for the men, we did not repeat the experiment elsewhere. I now regret this; for perfectly fresh water was subsequently struck by Lāl Singh within a day's march farther up this side of the valley, while at other points more to the east the water again proved brackish. In all probability the degree of salinity in the water of the Bēsh-toghrak valley depends largely upon the nature of the immediately adjacent soil.

Halt at foot of plateau.

As we found farther on abundance of reeds near the foot of the coastal plateau as well as plenty of the thorny 'Kongurchak' scrub which could be used for fires—we had been running very short of fuel—we decided to halt there. It was clear that in order to reach our appointed rendezvous at Kum-kuduk, which from the mapping of my previous journey I could now locate with approximate certainty to the south-south-east, we should have to face once again the hard salt-crust surface across the eastern arm of the sea, and this at a point where its width was still considerable. It was necessary to let the camels have a rest and a feed before subjecting them to the fatigues entailed by this passage. Nor was some rest after the day's short march unwelcome to us men, who all felt the strain of the exertions and anxieties we had passed through. Our early

[4] Cf. *Serindia*, ii. pp. 576, 589.

halt at Camp cvii (Fig. 182) was rewarded by an interesting discovery, which otherwise would have escaped us.

Miscellaneous ancient remains.

Tokhta Ākhūn on searching the much-eroded clay terraces to the north-east of our camp[8] came upon fragments of pottery on the steep slope of one of them. On proceeding with him to the spot I found a number of potsherds, C. cvii. 02–6, 08–9, together with part of a large iron buckle, C. cvii. 07 (Pl. XXIII), and charred fragments of wood lying among big boulders of clay just outside a shallow rock cavity. The latter might have once been larger and the boulders have fallen away from its projecting roof. In any case the cavity, recalling those often found at sacred sites in India where Hsüan-tsang speaks of 'rock dwellings', had evidently served as a shelter for wayfarers. Among the pottery fragments, all of greyish and probably hand-made ware, there is one, C. cvii. 08 (Pl. XXIII), showing a raised moulding with a modified dog-tooth ornament which I had often noticed among potsherds of the Lou-lan Site (L.A.). The conclusion seems therefore justified that these modest remains go back to the period when Lou-lan was inhabited, and were left by travellers on the ancient route leading to it. Mention may here be also made of the small stones, C. cvi. 01–3, some of them, perhaps, worked, which were picked up on sandy soil on the way from Camp cvi. They had also probably been brought there by traffic, though of earlier date.

Hard-trodden track reappears.

On the morning of March 6th, we started early in the face of a bitterly cold north-east wind, which blew all day. The atmosphere had considerably cleared, and we took our course towards a large detached Mesa which we sighted to the east. From its summit I hoped to secure a bearing on some feature on the southern side of the bay which would guide us to Kum-kuduk. The reed-beds thinned out as we proceeded, and tamarisks, too, grew rare. But on the gravelly soil that strange hard-trodden track, with the footprints of wild camels beside it, which we had met with again and again since reaching the northern shore of the bay, showed up here still more clearly. About two miles farther we came upon human footprints running across it; on following them up to the foot of the plateau, we soon made sure that Lāl Singh's party had camped there, as it turned out subsequently, on the night of the 4th. I was thus relieved of anxiety about my indefatigable surveying companion.

Mesas of Kum-kuduk sighted.

Half a mile beyond we reached the Mesa, which rose to a height of about a hundred feet and was coated with *shōr* to a line about fifteen feet above the level of the surrounding ground. From its summit I could descry a line of high Mesas rising in the direction of S. 150° E. above the quivering white haze which lay over the arm of the sea-bed. From their bearing I identified them with the large group of Mesas passed in 1907 to the west of Kum-kuduk, and, as the result showed, rightly. The appearance of white cliffs far away to the east-south-east, which I took as belonging to the plateau of Yantak-kuduk (Map No. 35. A. 4), and of other terraces to the south-west, those near Achchik-bulak, confirmed the location. But considering the great distance which still separated us from the southern side of the bay, it was clear that the visibility of the last two features could be due solely to refraction.

Crossing of salt-encrusted dry bay.

The line S. 150° E. which we now struck from the foot of the Mesa took us first over soft salt-impregnated clayey soil for about a mile and a half. Then followed a strip of hard salt crust with small channels of briny water showing here and there within narrow fissures. Fortunately these did not prove difficult to get round. Patches of soft brown *shōr* were also encountered up to the seventh mile from camp. Thence for close on five miles we continued our march over a surface of hard corrugated salt. As, however, the twisted edges of the contracted salt-cakes did not rise

[8] They are seen on the right of Fig. 182. The bushes in the foreground are 'Kongurchak'.

In Map No. 32. D. 4 the camp symbol has been wrongly shifted to the west instead of being shown just below the end of the figure cvii.

more than six to eight inches above the cup-like depressions in their centre, this surface was less trying than that over which our passage of the ancient sea-bed had taken us. On this section of the march we encountered three or four small channels holding an apparently stagnant solution of salt. They were nowhere more than four feet wide, and seemed to run with many windings in the general direction from north-east to south-west. Both banks were encrusted with pure white salt, and this being hard facilitated the crossing. I noted that the bank on the north side was usually a foot or two higher than the one opposite. We could see to the south, above the hazy air that oscillated over the salt waste, the fantastic shapes of Mesas raised by mirage into the semblance of huge Stūpas or spires. The highest of them remained curiously constant in its position, and its distance as indicated by intersection on the plane-table proved in the end correct.

Strip of salt bog.

At a point close on twelve miles from camp we were held up by a strip of boggy salt-covered ground showing a winding band of white brine in the middle (Fig. 181). The strip was from twelve to fifteen feet wide, and it took time before a place was found where, by putting down felts, it became possible to take one camel after another safely across. Beyond this the surface changed to a hummocky salt-encrusted clay of great hardness. Its sharp-edged crusty lumps made progress for the next two and a half miles most trying. Yet we had covered less than a mile from the boggy strip when the first stalks of living reeds were met with, growing on ground that seemed utterly incapable of supporting life. Deposit of loess dust between the stone-like lumps of salt-permeated clay may account for this thin strip of reed growth.

Reunion with Lāl Singh at Kum-kuduk.

At last we reached a sandy patch close to the northernmost of the line of Mesas we had steered for. They proved to be, as expected, the string of eroded clay terraces marked four miles to the west of Kum-kuduk by our survey of 1907.* Half a mile farther we reached, to the men's great delight, the lonely caravan track representing the *chong yol*, the 'high road', to Tun-huang. Some small disappointment still awaited us on arrival at the low sandy hillocks dotted with scrub, where I remembered our Camp 149 of 1907 to have stood by the side of a shallow well. For the track of Lāl Singh's cyclometer wheel, which we had eagerly followed in the hope of a prompt reunion at our appointed rendezvous, still led onwards. Five weary miles more had we to tramp over heavy sand before we found Lāl Singh and his little party encamped on the open reed-covered plain by the side of a newly dug water-hole. He had halted there in the preceding December, and with excusable preference for his own mapping had thought it safer to await us there than at the point which our survey of 1907 indicated !

Lāl Singh's route across dried-up sea-bed.

The exhausted condition of the camels, no less than the necessity of awaiting the arrival of the convoy with the heavy baggage, supplies, and ponies from Mīrān, made it necessary to halt at Kum-kuduk (the 'sandy well'). I used the first day of it to go carefully with Lāl Singh over the plane-table record of the route, well to the north and east of our own, that he had followed in accordance with my instructions. It had taken him first along the foot of the hill range east of Altmish-bulak to the salt springs of Yetim-bulak and Kaurūk-bulak, which Abdurrahīm knew well from his boyhood and which Dr. Hedin had visited in 1901 (Map No. 32. A. 2, 3). From the latter spring he marched down the Sai to the east-south-east, and after proceeding about ten miles came upon the expanse of the salt-encrusted sea-bed. It proved here, at its northern extremity, far wider than where we had crossed it. The party, after passing a belt of salt-coated Yārdangs, evidently an outlier of the 'White Dragon Mounds' that we had met between Camps ci and cii, had therefore to spend a very trying night at Camp 89, amidst hummocks of hard salt. Lāl Singh's aneroid, a remarkably reliable instrument, gave the elevation of the Yārdang belt as about a hundred feet higher than that of the flat salt-crust surface at this camp. Next day they had to cover fully

* See *Serindia*, v. Map No. 67. D. 4.



181. STRIP OF BOGGY GROUND ON SALT-ENCRUSTED LOP SEA BED, CROSSED TOWARDS KUM-KUDUK.



182. CAMP CVII AT FOOT OF CLAY TERRACES OVERLOOKING EASTERNMOST BAY OF DRIED-UP LOP SEA BED.



183. CAMP CVI WITH FIRST VEGETATION REACHED ON NORTH SHORE OF DRIED-UP LOP SEA BED.

twenty-four miles over the same difficult salt surface before they reached soft *shōr* beyond the edge of the eastern belt of Yārdangs (Map No. 32. c. 3).

Offshoots of hill ranges crossed by Lāl Singh.

The lines of terraces he here encountered appear to have been of the same type as those we had to make our way through to the south-east of Camp ciii. But owing probably to a more rapid rise of the ground, salt-incrustation ceased sooner, and an open gravel Sai was reached within about nine miles from Camp 90. Thence Lāl Singh's route, as the map shows, crossed the westernmost offshoots of a succession of low barren ranges all running parallel to that which overlooks the Bēsh-toghrak valley from the north. This agreed with what we had been able to observe on our way along the eastern coast-line, and fully confirmed the view already expressed by Dr. Hedin as to the non-existence of a continuous range bordering that side of the sea-bed.[7] Lāl Singh did not meet with any vegetation whatsoever until he descended into the Bēsh-toghrak valley near the point where we found his Camp 93. But when passing some six miles to the south-east of Camp 91 between two outliers of those barren hill chains, they came twice upon the footprints of a string of camels and of a solitary horseman. They were half effaced in the gravel and, to the experienced eyes of Abdurrahīm, seemed several years old. He took them to mark the passage of some Mongols making for Tun-huang from the western Kuruk-tāgh.

Mongols crossing to Tun-huang through Kuruk-tāgh.

Abdurrahīm, when questioned by me about this point, gave me interesting information which bears out this last inference. He remembered hearing from his father, who coming from Deghar had established the little colony at Singer in the Kuruk-tāgh and died there as an octogenarian, that his grandfather, who like his father had been a hunter of wild camels and familiar with the wastes of the Kuruk-tāgh, knew vaguely of a route leading through them to the Tun-huang side. This grandfather was believed to have died in his hundredth year. The Kuruk-tāgh valleys to the west of Singer are known to have been much frequented by Mongols from the mountains about Kara-shahr in the times preceding the great Tungan rebellion,[7a] and it appears to me likely that the family tradition related by Abdurrahīm was originally derived from a Mongol source. Migrations of Mongol families from the Central T'ien-shan to the mountains south of Tun-huang and An-hsi take place occasionally even nowadays. As these hardy nomads generally like to keep off the great lines of traffic, some more enterprising individuals among them may well have been tempted recently, as in former times, to make their way by the most direct line through the desert region of the Kuruk-tāgh and the westernmost Pei-shan.

Convoy from Mīrān rejoins.

The watering of our brave camels on that first day of our halt was a long business, and threatened to exhaust for a time the scanty supply of rather brackish water oozing out at the bottom of our well. It was still in progress during the afternoon of March 7th when a dust-cloud was noticed approaching by the track from the south-west. It proved to be the party at the head of my convoy from Mīrān, bringing the ponies laden with fodder supplies, also my hapless Chinese secretary, alive but as silent and inert as ever. It was followed before nightfall by the hired camels with our heavy baggage, under the care of ever faithful Ibrāhīm Bēg. With his accustomed energy he had managed, in spite of Loplik indolence and the poor condition of the hired camels, to secure the timely start of the caravan from Mīrān and to bring it safely through to meet us. Thus within less than three weeks of our separation at the Lou-lan Site the anxiously awaited concentration of my several columns was successfully achieved.

Halt at Kum-kuduk.

Even if our own camels had not been urgently in need of a short rest after what they had gone through, another two days' halt at Kum-kuduk was rendered imperative by the heavy bags of mails which had arrived with the caravan. The largest among them had come direct via Khotan under the care of Badruddīn Khān's old Dāk carrier Turdi, the same who, on my second journey,

[7] Cf. Hedin, *Central Asia*, ii. p. 114.

[7a] See below, Chap. xx. sec. ii.

had made his way to me in the Lop desert in a far more adventurous fashion.[4] Among the many letters, some close on five months old, which claimed my attention before we moved on, none was more welcome than the latest from Sir George Macartney's hand. Sent off from Kāshgar on January 23rd by Chinese post via Korla, it brought me the very reassuring news, based on telegraphic information from the British Legation at Peking, that Sir John Jordan had succeeded in securing from the Chinese Minister of Foreign Affairs the issue of telegraphic instructions to the Provincial Government at Urumchi to accord me favourable treatment and not to interfere with 'archaeological surveys'. Thus, thanks to Sir George Macartney's ever-watchful care and his prompt action in obtaining the effective help of H.B.M.'s Minister, the threatened obstruction, from which only the 'revolutionary' trouble at Charkhlik had temporarily saved me, was finally frustrated and the heaviest of the cares I had borne for two months removed.

Risk of official obstruction countered.

Survey of high sand ridges.

While I was kept hard at work on the mails for Kāshgar, Europe and India, which Turdi was to carry back via Khotan, and on the repacking of the cases containing the finds from the sites explored in the Lop desert, Lāl Singh made an excursion into the high sands to the south-east. He ascertained that the belt of mighty dunes seen from the caravan track all the way from Achchik-bulak to Bēsh-toghrak was at this point formed by a succession of well-marked ridges or 'Dawāns' running parallel to the direction of the valley and each rising to a height of about two hundred feet above our camping place.

Sand 'Dawāns' parallel to river-beds.

This direction of the high sands is of distinct interest, as it accords with what I have repeatedly observed as regards the big accumulations of dunes or Dawāns in the Taklamakān and the Lop desert, that they always range themselves parallel to the direction of the nearest river-beds, whether these still carry water or are dry.[5] It confirms the impression derived from the configuration of the Bēsh-toghrak valley and from the facts noted about its hydrography and that of the Su-lo-ho basin eastwards, viz. that the gradually narrowing eastern extension of the sea-bed which occupies most of that valley represents the ancient estuary of the Su-lo-ho drainage which in a geologically recent period emptied itself into the Lop Sea. We shall presently have occasion to recur to this supposition.

OBJECTS FOUND ON ROUTE FROM CAMP cv ALONG SHORE OF ANCIENT BAY

C. cv. 01. Bronze tag, made of rectang. plate, doubled, and joined at corners by two rivets which secured it to fabric. 7/16" × 7/16" × (length of rivet) 3/16". Pl. XXIII.

C. cv. 02. Carnelian bead, light red, spherical, showing signs of 'grounding'. Diam. ¼".

C. cv. 03–8. Frs. of fossilized tamarisk, from top of Mesa above ancient sea-shore, 10 miles to E. of C. cv. Gr. fr. 4" × ½" × ½".

OBJECTS FOUND ON ROUTE BETWEEN CAMPS cvi and cvii

C. cvi. 01–2. Two punch-like pieces of hard stone, dark grey. Gr. fr. (02), length 3½", thickness ¾" × ½".

C. cvi. 03. Flake of hard stone, light green (possibly used as 'scraper'). ⅝" × ¾" × ¼".

OBJECTS FOUND BELOW CLIFF NE. OF CAMP cvii

C. cvii. 01. Rough piece of wooden stick, showing charred surfaces. Length 5½", diam. ⅞".

C. cvii. 02–6. Five frs. of pottery. Coarse, gritty, grey; badly burnt. All frs. of side of vessel, except 03 which is fr. of bottom; 03 and 04 hard; others friable. Prob. hand-made. Gr. fr. (04) 3¼" × 2½" × 3/16". Thickness of 03, ⅜".

C. cvii. 07. Frs. of iron buckle, one side missing. 2¼" × 1½" × ¼". Pl. XXIII.

C. cvii. 08. Fr. of pottery; rough grey, of character similar to C. cvii. 02–6 with modified dog-tooth raised moulding. 2¼" × 2¼" × ¼". Pl. XXIII.

C. cvii. 09. Fr. of pottery, from rim of vessel, rough reddish-grey slightly recurved. Prob. hand-made. 3½" × 2" × 3/16".

C. cvii. 010–11. Two frs. of charcoal. *c.* ½" sq. × ½".

[4] Cf. *Desert Cathay*, i. pp. 407 sq.

[5] See *Serindia* i. pp. 241, note 2, 451 sq.; iii. p. 1239.

Section II.—THE VALLEY OF BĒSH-TOGHRAK

Discharge of hired camels.

On the morning of March 10th I was able to discharge the camels hired from Mīrān and Charchan, which had helped us so well on our explorations in the Lou-lan region and along the ancient Chinese route, and to allow their owners to return westwards to their homes. Along with them honest Tokhta Ākhūn and Niāz, his young Loplik companion, now also took their leave, well pleased with the rewards that their useful services had earned them. Turdi, with my return mail and the antiques he was to carry to Khotan, was entrusted to their care as far as Charkhlik (Fig. 189).

Arrangements for surveys.

The task immediately before us was to complete our examination of the line that the Lou-lan route had once followed beyond the terminal basin of the Su-lo-ho, by a survey of the ground along the foot of the hill range on the northern side of the valley right up to its head at Bēsh-toghrak. A special geographical interest attached to this ground in view of the relation, as I shall explain below, between the Bēsh-toghrak valley and the Mesa-filled area adjoining it eastwards, which I believe to represent an earlier terminal basin of the Su-lo-ho. It was on account of this interest that I had previously detached Surveyor Muḥammad Yāqūb from Mīrān to Kum-kuduk, with instructions to carry thence a line of exact levelling along the bottom of the valley to the nearest portion of that basin. In order to obtain full details about the topography of the northern side of the valley and also to ascertain exactly where the arm of the ancient sea that once filled its depression terminated to the eastward, I thought it advisable again to divide our party. I therefore let Lāl Singh proceed on March 10th direct to the north-east from Kum-kuduk, and with him I sent Afrāz-gul, whom I could trust to keep a careful look-out for any antiquarian indications or physical features of interest.

Early use of present caravan track.

I myself, with the heavy baggage, marched on the same day by the caravan track as far as the eastern extremity of the winding plateau at the foot of which lie the several wells known as Yantak-kuduk (Map No. 35. A. 4). In *Serindia* I have recorded the reasons which lead me to believe that the route along the southern side of the Bēsh-toghrak valley, as marked by the present caravan track from Tun-huang to Mīrān, was already in use in Han times.[1] It certainly was followed by Fa-hsien in A.D. 400, by Hsüan-tsang in A.D. 645, and more than six centuries later by Marco Polo.[2] It is therefore of interest to note here that Abdurrahīm, before leaving Kum-kuduk, handed me the well-preserved bronze arrow-head Kum. 01 (Pl. XXIII). It is different from the Chinese ammunition of Han times, but closely corresponds, in respect of its barbed narrow blades and the triangular depressions in the ferrule between them, to the type, probably indigenous, of the arrow-heads, Lāl S. 015 and C. xcvi. 016 (Pl. XXIII), found near the Kuruk-daryā, and also of one found at the Niya Site.[3] He stated that he had found it on coarse sand when looking after his camels at no great distance from our Kum-kuduk camp. The pottery fragment he had picked up near the same place, Kum. 02, affords no chronological indication.

Eastern extremity of dry sea-bed.

Leaving the main camel train to follow the caravan track, I then struck off with light baggage to the north-north-east. After passing through fairly thick reed-beds for about two miles, we came upon ground covered with hard salt-impregnated clay lumps. As we crossed this *shōr* I could see that it extended to the west as a continuous, gradually widening belt, while eastward it came to an end within about a mile and a half or less, being completely edged in by reed-beds. Here then the eastern extremity of the arm of the sea-bed could be definitely determined. The belt of *shōr*

[1] See *Serindia*, ii. p. 555.

[2] Cf. *ibid.*, ii. pp. 558 sqq.

[3] See above, pp. 274, 279; *Serindia*, i. p. 250; iv. Pl. XXIX, N. xiv. 008.

where we crossed it was about two miles wide.[4] Beyond it the ground was covered with fine sand supporting an abundance of reeds, tamarisks and scrub.

Evidence of subsoil drainage.

As we were moving across it towards the low banks of clay marking the foot of the glacis, I noticed moist soil at about six miles' distance from camp. It was clear proof of the presence of subsoil water here close to the surface, and on digging a well we found a plentiful supply at a depth of only three feet. It tasted perfectly fresh, far better than the water of the wells at Kum-kuduk and Yantak-kuduk. Considering the utterly barren nature of the hill range overlooking the whole valley, the comparative nearness of its crest, and the extremely scanty drainage which can ever descend from it in the short channels cut into its glacis, it appeared to me very unlikely that the water found here and at other points along the northern edge of the valley could have any other source than a flow of subsoil moisture fed from the head of the valley near Bēsh-toghrak. The origin of this subterranean water-supply is an interesting question which will best be discussed later on in connexion with that of the hydrography of the ancient terminal basin of the Su-lo-ho farther east.[5]

Traces of old track.

The sand across which we moved became steadily coarser until we reached the gravel Sai below a line of low clay banks manifestly eroded by water, like the banks of a river. Here I noticed quite clearly an old track, distinct though only faintly impressed, coming from west-south-west. No footprints of wild camels were observed anywhere near it. It was the same track that Lāl Singh and Afrâz-gul coming from their Camp 96 had traced for a much longer distance and found in places actually marked by small cairns. Their report, as recorded below, fully bore out the impression I gained here that it was a path which had first been trodden by men. Following the line of clay banks eastwards we soon lost the old track in a reed-covered depression. Beyond this we arrived, at a distance of about fourteen miles from Yantak-kuduk, at a bold Mesa, about eighty feet high, which had clearly been detached by erosion from a foot spur of the hill range projecting into the trough of the valley. I clambered with difficulty to the top, in order to fix the plane-table, and found, to my surprise, remains of dead tamarisk wood.[6] Considering the position, there could be no possible doubt about the antiquity of these remains. They suggest distinctly moister climatic conditions than those now prevailing; for at that height neither subsoil water nor a surface flow could possibly account for the former growth of vegetation.

Water-logged ground.

From the top of the Mesa I noticed ground which looked as if it might hold patches of open water. So I turned now to the east-south-east, and after about two and a half miles' march across reed-beds reached a salt bog extending for a considerable distance in the same direction. It was fully seventy yards wide where we skirted it near its western extremity. The salt-encrusted soil immediately to the north of it proved water-logged below the surface, and it was with some difficulty that we extricated the camels which were foundering on the treacherous ground. The presence of this well-defined marsh-bed close to the foot of the low and utterly barren outer hill range of the Pei-shan distinctly pointed to a considerable flow of subterranean drainage from the head of the valley eastwards. After another mile's march over light sand we pitched camp and found water at a depth of only four feet, which, though tasting slightly brackish, was yet drinkable. The well passed through a thin layer of *shōr* embedded in fine sand.

Next morning we moved east-north-east in the face of a bitterly cold wind from the same direction, and passed over ground mostly covered with hard salt-impregnated clay. After a march

[4] Owing to a mistake in the compilation of our several routes the symbols indicating the *shōr*-covered ground passed on my route north of Kum-kuduk, as well as that of the well dug beyond it, have been shown in Map No. 35. A. 4 about two miles too far northward.

[5] See below, pp. 334 sqq.

[6] The piece Kum. 03 (see List at end of section) is a specimen of this wood; see also above, p. 320, C. cvi. 03.

of three and a half miles we arrived at the southern end of a belt of Mesas, projecting into the flat expanse of the valley from the glacis of the hill range and running from NNE. to SSW. Their average height was forty to fifty feet. When looking round from the top of the Mesa on which I had fixed the plane-table, I was struck by the curiously straight line of what looked like a double embankment, stretching away to the north-east for about three-quarters of a mile. The raised edges were covered with reeds, while the space between the two banks, which appeared about twenty feet wide, was bare of vegetation. Where this line passed among the Mesas, just north of the one I stood on, it turned at right angles and took a north-westerly direction. I remembered the difficulty I had experienced in 1907 during my explorations along the Tun-huang Limes, in attempting to follow up on scrub-covered ground the traces of decayed earth walls which I had clearly distinguished before, when looking down from a height.[7] I therefore did not examine this strange line more closely. Straight line of embankment(?).

I had occasion the next day to regret this omission when I perused the route report that Afrāz-gul had kept while accompanying Lāl Singh, and found there that he had quite independently made an exactly corresponding observation some fourteen miles farther west. Marching from Camp 96 and skirting the edge of the gravel Sai, they had come upon a series of old cairns and a strange embanked line running across reed-covered ground lower down. Afrāz-gul had been able to trace the line clearly for about one-third of a mile, the bare space in the middle being about twenty-one feet wide and the reed-covered banks raised at least a foot or two above it. The direction of the embanked line where traced was straight and almost due east to west, but a bend at the eastern end of the stretch indicated that it came from the north-east. The cairns, three in all, were found over a distance of three-quarters of a mile and lay in the same direction. They were built of rough stones and looked much decayed. A fourth cairn of the same kind had been met with before about a mile and a half to the south-west. Cairns and banks observed by Afrāz-gul.

The impression received by both Afrāz-gul and myself was that of a canal rather than of a road. It has consequently occurred to me that the line thus observed at two widely distant points might possibly be the trace left by an attempt to bring water down the valley along the Lou-lan route and thus to facilitate traffic on it. But the evidence gathered is too slight to justify more than a conjecture put forth with all due reserve.

My farther march beyond the Mesa above mentioned lay first to the east-north-east across ground where reeds grew abundantly both on sandy soil and on intervening patches of soft *shōr*. Then low dunes became frequent, completely fixed and overgrown by reeds. After having thus covered about fourteen miles from our last camp I turned to the south-east and reached the two long clay terraces, about a hundred and twenty feet high, between which the caravan track passes before approaching Bēsh-toghrak (Map No. 35. B. 4).[8] I well remembered noticing in 1907 the curious gate-like appearance produced here by the narrowing of the valley trough. Ascending the farthest point of the terraces which jut out from the long sand-covered clay ridge on the south, I could clearly make out a corresponding promontory projecting opposite to them from the steep line of clay cliffs which marks the foot of the hill chain overlooking the valley from the north. Terraces stretching across trough of valley.

From what I could see with my glasses and from the information contained in Lāl Singh's plane-table and in Afrāz-gul's route report, these spurs facing each other from the south and the north appear to be of exactly the same character and configuration. Considering that the distance dividing their ends is only three miles, the inference seems justified that they represent the remnant of a clay ridge that once stretched ledge-like right across the valley and was cut through by the action of water. The erosive effect of a great volume of water is similarly reflected in the appear- Result of erosion by water.

[7] Cf. *Serindia*, ii. p. 637.

[8] See *Desert Cathay*, i. p. 527.

ance of the bold cliffs that from here onwards line both sides of the basin-like head of the valley as it widens again eastwards. The observation is of special interest because, as appears from Muhammad Yāqūb's levelling operations to be presently mentioned, the ground descends steadily from the ancient terminal basin east of Bēsh-toghrak to the dried-up sea-bed near Kum-kuduk. This furnishes distinct evidence of the existence of a connexion between the two in a comparatively recent geological period.

Footprints preserved in gravel soil.

A minor observation of some interest also rewarded my visit to the terraces which my lamented Chinese Secretary, Chiang Ssŭ-yeh, and myself had baptized in 1907 with the name of *K'ai-mên kuan*, 'the defile of the open gate', viz. to westernmost China. In the narrow strip of gravel at the foot of the more northern of the two terraces I found clearly impressed the traces of an old track evidently caused by movements of wild camels before the caravan traffic had scared them away from grazing along this southern side of the valley. But there was another proof, too, how well gravel-soil in this extremely arid region preserves the traces even of an occasional wayfarer's passage. On the gravel slope of the northern terrace there remained quite sharply defined the footprints of my pony leading up to the point from which, as I remembered, I had, seven years before, surveyed the open valley eastwards and sighted the few poplars of Bēsh-toghrak. I was to find on many subsequent occasions similar proofs of the exceptionally retentive nature of the desert soil on these barren confines of true Cathay.

Arrival at Bēsh-toghrak.

The remaining tramp of six miles to the wells of Bēsh-toghrak took me over ground with which I had already become familiar on my second journey. It does not require fresh notice here, beyond the mention that I was again struck by the comparative luxuriance of the desert vegetation which covers the sandy soil at the head of the valley, as well as by the water-eroded appearance of the cliffs which here also fringe its southern side. Farther down the valley high dunes completely screen the foot of the extensive plateau, probably also of clay, which borders it on the south. I found Surveyor Muḥammad Yāqūb encamped at Bēsh-toghrak; he had been there for several days, after safely completing his line of levelling, which he had carried over a distance of close on sixty miles with a total of 526 stations. In accomplishing this task on such inhospitable ground and under severe climatic conditions, he had shown much patient devotion and endurance.

Route followed by Surveyors.

On the day of halt which followed, March 13th, Lāl Singh and Afrāz-gul also rejoined me. They had carried their survey right across the salt-encrusted arm of the old sea-bed to the north of Kum-kuduk and thence, as Map No. 35. A, B. 3, 4 shows, close along the edge of the gravel-covered glacis of the hill range. One important observation made by Afrāz-gul, which has a direct antiquarian bearing, I have already discussed above.[a] A few other points of interest ascertained in the course of the Surveyors' work along that route may conveniently find mention here before we turn to Muḥammad Yāqūb's line of levels and to the geographical conclusions it supports. Starting from Kum-kuduk, the hard salt-crust surface of the sea-bed was reached at a distance of about two and a half miles. It extended northward for fully six miles, broken only towards the middle by a small patch of reed growth over clayey *shōr*, and beyond this by a streak of briny water about thirty feet across. The belt of sandy soil with reeds and scrub met with on the opposite side was quite as broad as near Kum-kuduk.

Water reached by digging.

Passing through this, the Surveyors kept, for the rest of their first march and for the whole of the next, close to the line where the sandy scrub-covered belt meets the gravel Sai along the foot of the clay plateau. In several places the edge of this plateau was found broken up by erosion into a string of small isolated clay terraces or ridges. At the foot of a small reed-covered hillock which served for a fixing, five miles to the east of Camp 96, Afrāz-gul's observant eye noticed

[a] Cf. above, p. 323.

signs of moisture in the soil and had a well dug. At only two and a half feet from the surface water was struck in abundance and, according to Afrāz-gul's statement, 'as fresh as that of any river'. This completely tallies with what I observed at my own well, more than eight miles farther up, and makes me inclined to believe that by sinking wells at suitably selected points drinkable water could even now be found probably on the northern side of the valley as far down as our Camp cvii.

For about a mile and a half before reaching the point where they came upon the embanked line above discussed suggestive of an ancient canal, the Surveyors' route led along a well-marked ancient track, and this, as shown on the map (No. 35. A. 4), they were able to follow, with breaks here and there, for another six miles or so. Considering that near the vicinity of the above point three small cairns were found on little elevations close above the track, and that another cairn was noticed about a mile and a half farther to the south-west, similarly near this track, it is difficult to resist the conclusion that it owed its origin to, or was used by, men. How long ago, it is impossible to guess. No footprints of wild camels were noticed on or along it, though numerous in the scrubby belt farther south which affords good grazing.

A well-marked old track.

Of the observations recorded by the Surveyors on their farther progress towards Bēsh-toghrak the following may deserve brief notice. To the north-east of Camp 97 their route crossed two broad Nullahs descending from the hill range and cutting through the gravel-covered clay plateau, much after the fashion I observed to the east of the present terminal basin of the Su-lo-ho.[10] The projecting plateau tongues thus produced showed a relative height of 120 to 150 feet. Beyond the mouth of the second Nullah a stretch of ground was passed which for about two miles was covered with Yārdang-like clay terraces from six to twenty-five feet in height. There can be no doubt that these terraces, all stretching from NNE. to SSW., just like the belt of Mesas I had myself passed farther to the south-east, were produced by wind-erosion. They obviously represent the last remnants of former plateau tongues which first had been carved out by drainage from the hill chain and had been subsequently cut through by the erosive force of the wind. Their origin was thus exactly the same as that of the clay ridges and Mesas observed in 1907 at a number of places south of the terminal Su-lo-ho.[11]

Belt of terraces carved by wind-erosion.

Beyond this belt of Yārdangs and an outlying isolated Mesa a large patch of boggy ground was met with, resembling that I had passed near my Camp cx. Its occurrence here affords further proof of the abundance of subsoil water towards the head of the Bēsh-toghrak valley. At Camp 98, which stood a couple of miles to the south-west of the cliffs facing 'K'ai-mên-kuan', water was found at two feet from the surface. It proved distinctly brackish, though drinkable, a circumstance fully accounted for by the fact that the camp stood near the northern edge of an extensive area where hard *shōr* mingled with patches of salt-impregnated soil supporting reed-beds. It was after crossing this ground, no doubt once a bog, for fully four miles that the Surveyors reached the sandy belt with abundant vegetation which makes Bēsh-toghrak so convenient a place for halts on the desert journey to Tun-huang.

Subsoil water at head of valley.

The account here given of the physical aspects of the ground through which the Lou-lan route must have passed after emerging from the Su-lo-ho basin may be appropriately completed by some observations on the results of Muḥammad Yāqūb's levelling operations. The object with which I had arranged these was to ascertain whether the assumption suggested to me by the observations of my previous journey to Tun-huang in 1907, regarding an earlier connexion between the terminal basin of the Su-lo-ho and the ancient Lop sea-bed,[12] was supported by the configura-

Levelling operations.

[10] See Map No. 35. C. 4; *Serindia*, ii. p. 642; *Desert Cathay*, ii. pp. 139 sq.

[11] See Map No. 38. A. 4; *Serindia*, ii. pp. 576, 589.

[12] Cf. *Serindia*, ii. pp. 551 sq.; *Desert Cathay*, i. pp. 533-7.

tion of the ground in the Bēsh-toghrak valley. For this purpose I had instructed the Surveyor before our start from Mīrān to carry a continuous series of levels with the Zeiss levelling instrument provided on Sir Sidney Burrard's recommendation, from north of Kum-kuduk to the first dry lake basin crossed by the route eastward of Bēsh-toghrak.

Line of levels.

My instructions were that this line of levels should, as far as practicable, be carried along the lowest ground of the depression separating the foot of the hill range on the north from that of the chain of high sand ridges on the south. But Muḥammad Yāqūb, soon after starting from Kum-kuduk, encountered the great belt of hard salt crust which here marks the eastern arm of the dried-up ancient salt sea, and recognizing the formidable obstacle it presents to prolonged work, decided to commence his levelling on the sandy scrub-covered ground which edges the salt-encrusted belt on the north. Starting from his Camp XCVIII a little to the east of the meridian of Kum-kuduk (Map No. 32. D. 4), his line of measured levels, as marked by the route line past his Camps XCIX–CII, kept first near the northern edge of the salt-encrusted ground and farther on approached closer to the middle of the valley. Owing to a misapprehension, which however does not affect the result, it crossed the valley to the Bēsh-toghrak wells, before it was finally brought with a north-easterly curve to the ' basin with wet sand ' shown in Map No. 35. B. 3. The total length of the line over which the series of levels was measured was 59 miles 6 furlongs, a constant distance of 600 feet being maintained between each pair of the 526 stations.

Datum point at Bēsh-toghrak.

The result of this operation is recorded graphically in the sectional drawing of the levelled ground which is reproduced as Appendix C of my *Memoir on Maps of Chinese Turkistan and Kansu*. In this the height of Bēsh-toghrak (Camp CII), 2,340 feet, as shown in Map No. 35. B. 3, has been adopted as the datum point. This height was derived, at the time of compiling the 1 : 500,000 map, from the mean value of the observations made in 1907 and 1914, and in view of the considerable discordance between the two it can lay no claim to any close approach to accuracy.[12]

Continuous descent of valley bottom.

But this in no way affects the very definite proof which the levelling chart affords of the gradual and continuous descent of the valley bottom from the dry lake basin east of Bēsh-toghrak to the salt-encrusted ancient sea-bed north of Kum-kuduk. The starting-point of the levelled line at the latter point is shown to lie 250 feet below the former, and the descending slope to be a gentle but steady one, with an average fall of about 4·2 feet per mile. Such occasional small breaks in the continuity of the downward slope as the chart indicates nowhere exceed 5 feet, and are such as inevitably occur owing to slight inequalities of the ground wherever levels are measured in a more or less straight line and not along the actual course of the surface drainage.

Geographical interest of levelling.

In view of the uncertainties besetting all height observations made only by aneroid or hypsometer and the impossibility of judging slopes on ground which appears as flat to the eye as does the salt-encrusted bed of the ancient Lop Sea and of its eastern extension into the Bēsh-toghrak valley, the conclusive evidence supplied by the above levelling claims special importance. It proves that the whole of the valley belongs to the drainage area of the Lop basin. The geographical interest attaching to this fact will become clearer in the light of what I have to record below regard-

[12] While in Sheet No. 70 of the quarter-inch map in *Serindia* the height of 2,620 feet is shown for Bēsh-toghrak on the basis of the aneroid reading recorded by R. S. Ram Singh on my second journey, the readings of the aneroid observed by R. B. Lāl Singh on his two successive halts at the same spot, December 22, 1913, and March 14, 1914, are computed as indicating elevations of 2,012 and 2,260 feet, respectively.

In computing the former of these two aneroid readings account has been taken of the correction supplied by the reading of a mercurial barometer observed on the same date (cf. Dr. Hunter's table in *Memoir on Maps*, p. 153). As the air-pressure indicated by the latter differed only by 0·03 inch, corresponding to 32 feet, from the aneroid reading on December 22, 1913, it seems that the lower elevation is likely to be nearer to the true one.

ing the observations made by me immediately to the east of Bēsh-toghrak and the true relation between that drainage area and the dry wind-eroded basins north of the present termination of the Su-lo-ho.

OBJECTS FOUND NEAR KUM-KUDUK

Kum. 01. **Bronze arrow-head,** of type Lal S. 015, but slightly larger. Ferrule retains iron tang. Long triangular depressions in sides of ferrule between blades, not pierced through. See C. xcvi. 016 (Pl. XXIII); T. xxii. f. 02–3 (Pl. XLVII); also *Ser.*, iv. Pl. XXIX, N. xiv. 008. Excellent condition. Length 1$\frac{7}{16}$", gr. width $\frac{11}{16}$". Pl. XXIII.

Kum. 02. **Fr. of pottery,** reddish-black, corroded. Gr. M. 2¼".

Kum. 03. **Fr. of tamarisk wood,** bleached and split, but hard. Length 5".

Section III.—AN ANCIENT TERMINAL BASIN

Ancient Chinese route east of Bēsh-toghrak.

After a single day's halt at Bēsh-toghrak, we set out on the morning of March 14th for the last few marches still separating us from the westernmost portion of the Tun-huang Limes. Having regard to the information obtained on my passage seven years earlier and on my subsequent explorations along the old border line, I could feel no doubt that the ancient Chinese route to Lou-lan must here have followed the same line as the present caravan track surveyed in 1907. The reasons for this belief have already been explained by me in *Serindia*.[1] I have, I think, proved in the same work that 'the *San-lung* 三 隴 ("Three Ridges") Sands', which the *Wei lio's* itinerary mentions as traversed at their northern extremity by the 'route of the centre', are represented by the successive ridges of dunes that the present route crosses on the first march east of Bēsh-toghrak; also that the *Chü-lu* granary 居 盧 倉, mentioned next to the west of the 'Three Ridges Sands', may with great probability be located at or near Bēsh-toghrak. That the ancient route to Lou-lan from the point where it passed out of the area protected by the 'Great Wall' of Han times lay actually where the track to Lop now leads, was definitely proved in 1907 by the remains of the ancient watch-towers T. i and T. ii which I then traced as an advanced line intended to guard it.[2]

Problem raised by old lacustrine basin.

Thus there remained no question of ancient topography to be solved on my renewed passage along this easternmost section of the Lou-lan route. But the observations which I had made in 1907, when passing through what was manifestly an old lacustrine basin east of Bēsh-toghrak, had raised a problem of distinct interest in connexion with the physical geography of this ground. As briefly set forth in the Personal Narrative of my former journey,[3] they indicated an earlier direct connexion between this basin and the terminal course of the Su-lo-ho, which at present comes to an end farther south. The same observations suggested that moisture, whether above or below the surface, might even now reach the basin from that side. The levelling operations detailed in the preceding section had definitely established that the basin was included in the drainage area of the ancient Lop Sea. Its connexion with the Su-lo-ho on the other side would, if proved, imply a vast extension eastwards of that drainage area. These considerations made it obviously important to carry out a closer survey of this ground, and at the same time also to ascertain the actual termination of the Su-lo-ho to the south.

Plan of surveys.

In order to attain this object within the very narrow limits of time imposed by the exhausted condition of camels and ponies and the probable difficulties about water, I again divided my party. Muḥammad Yāqūb was to carry his levelling by one more day's work to the nearest portion of the dry basin east of Bēsh-toghrak, and then to follow the caravan track with the heavy baggage to a rendezvous near its eastern end. Lāl Singh was directed to leave the caravan track near the

[1] See *Serindia*, ii. pp. 555 sqq. [2] Cf. *ibid.*, ii. pp. 638 sqq. [3] Cf. *Desert Cathay*, i. pp. 533 sqq.

middle one of the broad sand ridges which it crosses near the southern edge of the basin. Striking thence south-eastwards he was to seek for the lowest course of the Su-lo-ho in the bed coming from Toghrak-bulak (Map No. 35. c. 4) and to trace it through to its termination. I myself, taking Afrāz-gul with me, proposed to follow a course which would take us to the north and south of the track already surveyed in 1907 and allow us to ascertain more closely the character of the ground within the limits of the dried-up basin.

Muḥammad Yāqūb's work.

Of Muḥammad Yāqūb's work it will suffice here to mention that by proceeding from Bēsh-toghrak first to the north-east and then striking eastwards he succeeded in carrying his levelling line to the western edge of the dried-up basin to be described presently. He did this by passing through a small gap in the chain of high dunes which winds round it on that side. It is for this reason that the elevation of this fringe of dunes does not appear in the end portion of the ground sectionally shown by the levelling chart.[4] After the Surveyor had rejoined me at Camp cxiii he was sent across the stony plateau on the south to the terminal course of the Su-lo-ho, which he subsequently mapped right through to its end in the salt lake shown by Map No. 35. B. 4.

Approach to old lacustrine basin.

My own route on March 14th led at first along the caravan track, and even here gave rise to some interesting observations. At a distance of about three miles from Bēsh-toghrak I found a couple of wells, only three feet deep, marking a new halting-place and attesting the nearness of subsoil water to the surface.[5] A luxuriant growth of reeds and scrub extended over the flat sandy bottom of the valley up to the belt of high dunes which stretches across it and marks, as already noted in 1907, the western limit of the dried-up lake basin. The sand ridges of this belt, reached at a distance of about five and a half miles from Bēsh-toghrak, rose to a height of forty to fifty feet. The dunes ran right across the valley bottom and seemed also to ascend for some distance on the gentle sloping gravel glacis of the barren hill range on the north. From the top of the broad ridge of sand crossed by the caravan track, the wide flat expanse of the basin covered on its edge with light salt efflorescence came into full view eastwards. In the distance behind it I could see the great array of high Mesas which already in 1907 had impressed me as of unmistakably lacustrine origin.

Signs of recent inundation.

As soon as we had descended to level ground, I was struck by clear evidence of its having undergone quite recent inundation. While still among low dunes I already noticed that the growth of reeds between them was far more abundant than I remembered it to have been in 1907. Where the flat surface was reached, at a little over six miles from Bēsh-toghrak, a thin fringe of young reed shoots marked the shore-line of what had manifestly been a wide temporary lake during the preceding summer and autumn. The light film-like deposit of salt efflorescence along it was just such as would be drawn to the surface by the watering of fields newly brought under cultivation. Beyond this the sand, now distinctly moist, became gradually clear of *shōr* and, in wide depressions, also of reeds, where the water had evidently stood too deep for their growth.

The caravan track, easily effaced in 1907 on the dry sand which then covered this stretch of ground, had now become a broad and well-marked road over the wet surface. We followed it for about two miles to the first of the tongue-like ridges, completely covered with drift-sand and flanked by isolated clay terraces, which jut out at intervals into the basin from the south. We now separated from Lāl Singh, who continued by the caravan route for some four miles farther, and turned off to N. 60° W.

March across moist sand.

Our onward march on this bearing took us over ground showing all the characteristics of a lake-bed only recently under water. Its deeper portions, winding like the lagoons that are met with

[4] See *Memoir on Maps*, App. c. In Map No. 35. B. 3 Muḥammad Yāqūb's line of levels, which stopped after reaching the western edge of the basin, has been by mistake joined up with my own route line.

[5] In Map No. 35. B. 4 these wells have been shown by a draughtsman's mistake about a mile too far east.

in the area liable to inundation from the Tārim to the north-east of Abdal,[6] were quite clear of reeds. Here the foot sank deep, and the sand underneath was saturated with water, apparently fresh. Slightly higher portions of the ground bore thin growth of young reeds, while the sand showed a crusty surface as the result of moist soil contracted under a hot sun. Here, too, the sand immediately below the surface was moist, and throughout there was a striking absence of *shōr*. For this it seemed impossible to account except on the assumption that the water which periodically spreads over this basin is carried off again by subterranean drainage before it becomes evaporated. Our line of march allowed the western limit of this basin to be seen quite clearly. It was edged everywhere by the belt of dunes already referred to. The fact that these seemed lowest towards the north-west near the foot of the gravel Sai suggested the possibility of an outflow towards the area of soft *shōr* that Muḥammad Yāqūb had noticed north of his line of levelling from Bēsh-toghrak.

After having thus covered a distance of five and a half miles across the open flat of the basin we arrived at a big Mesa, the northern outlier of a line of clay terraces rising within the basin on our right (Fig. 187). It rose steeply to a height of about 120 feet and showed seven horizontally stratified layers of reddish clay separated by thinner strata of yellowish sand. From its top, an extensive view was obtained over the dry lake basin to the south and west, as well as over the absolutely bare Sai of dark gravel sloping up gently northward. The edge of the basin in the latter direction was well defined by a narrow belt of small sandy hillocks, only four to six feet high, bearing thorny scrub and fringing the shore-line. View from high Mesa.

To the east the eye was met everywhere by serried rows of those high wind-eroded clay terraces which had already presented themselves as a most striking feature of this area on my passage in 1907 farther south.[7] Their lines, as was subsequently noted on many occasions, stretched everywhere from north-north-east to south-south-west, showing the same regularity as the familiar Yārdangs of the Lop desert, but a different bearing. That these big terraces rising to heights from eighty to a hundred and twenty feet or thereabout were, in fact, not different in character and origin from those Yārdangs was testified by their invariably long and narrow shapes and the comparative rarity of the gaps separating those which belonged to the same row. Serried rows of Mesas.

The successive rows themselves were separated by intervals which in this portion of the basin did not exceed a quarter of a mile or so. These rows of big terraces afforded clear evidence of the powerful action of wind-erosion on this ground during an earlier epoch. The total absence of Yārdang ridges and trenches on the open ground of the basin and between the rows of terraces was all the more curious. I could attribute this contrast only to the protection afforded to the soil in the present epoch by periodical inundation, coupled with the nearness of moisture below the surface, and the consequent growth of some vegetation above it. Absence of Yārdangs.

A well dug at the foot of the Mesa which had served for our plane-table fixing yielded perfectly fresh water at a depth of only three feet, conclusive evidence that a constant flow of moisture finds its way also to this northern edge of the basin. No doubt, this accounted likewise for the plentiful scrub on the low hillocks of sand which, as already mentioned, fringe the basin below the foot of the gravel glacis. We had these well within view while continuing our march for about two miles to north-by-east. After threading our way between the fantastic forms of Mesas, upon which wind-erosion, using the gravel close at hand as its weapon, was obviously able to exert its full strength, we finally emerged on the open slope of the Sai.[8] Well dug at foot of Mesa.

[6] See above, p. 181; Map No. 30. C. 1; *Serindia*, i. pp. 351 sqq.

[7] Cf. *Desert Cathay*, i. p. 533.

[8] The insertion of two Mesa symbols in Map No. 35. C. 3 beyond the northern turning-point of our route is due to a draughtsman's mistake which escaped attention.

Glacis of gravel northward.

I ascended the slope sufficiently far to make sure that rows of high clay terraces, just like those we had skirted, abutted on the foot of the Sai for a distance of at least four miles eastward. Above this wide glacis of piedmont gravel there rose only a few scattered terraces of reddish clay of no great height, showing that the soil underlying the cover of coarse gravel was the same here as that from which the rows of Mesas had been carved out within the basin southward. No trace of vegetation, living or dead, could be seen anywhere on this desolate Sai; nor could we, scanning its surface with our glasses, discover any signs of well-defined drainage channels across it. As seen from the Mesas that we ascended, the gravel slope to the north-east stretched away unbroken with an apparently very uniform gradient right up to the horizon. To the north only low isolated hills showed above it in the distance. It seemed clear that from those sides no drainage could reach the basin sufficient to account for all the moisture shown by its surface.

Length of Mesas.

After having thus reconnoitred the northern limit of the basin, we turned to the south-south-east and marched along the gravel-strewn trough between two rows of high Mesas. The longitudinal extension of the Mesas is illustrated by the fact that, while thus moving for a distance of over two miles, I noticed only one gap in the Mesa row on our left through which it might have been possible to take our camels. After that distance had been covered, vegetation appeared again in the shape of some thorny scrub growing on a few small hillocks of sand, and there we camped for the night. The attempt at a well was abandoned as the soil composed of mixed gravel and sand showed no signs of moisture after we had dug down a few feet.

Formation of Mesas.

The night of March 14th to 15th brought a violent storm from the south-west, which cleared the atmosphere completely. As a result, the view obtained when in the early morning we ascended a prominent Mesa, probably about a hundred and fifty feet in height, just south of our camp, was exceptionally comprehensive. All round us it showed serried lines of Mesas, built up of layers of reddish-brown clay with much thinner strata of yellow sandstone between. The panoramic view reproduced in Figs. 184–6 well illustrates the varied shapes of these Mesas, and also shows how wind-erosion attacking the softer sandstone strata undercuts the more solid clay and gradually breaks up the long ridges into smaller terraces and knolls.

Southern edge of lacustrine basin.

Besides the big area of Mesas in which we stood, two other belts of them, narrower but longer, could be made out eastwards. These, too, were obviously comprised within the limits of the ancient lacustrine basin extending between the foot of the gravel glacis northward and the line of high sands on the south. From our elevated point of observation I could clearly see that this line of big dunes was continued on the south-east by a long flat plateau of Sai, and our mapping of 1907 left no doubt that behind this there lay the end of the Su-lo-ho course, as then surveyed.* But of a gap in this plateau by which the waters of the dying Su-lo-ho might reach the basin, as then conjecturally assumed, no indication was to be discovered.

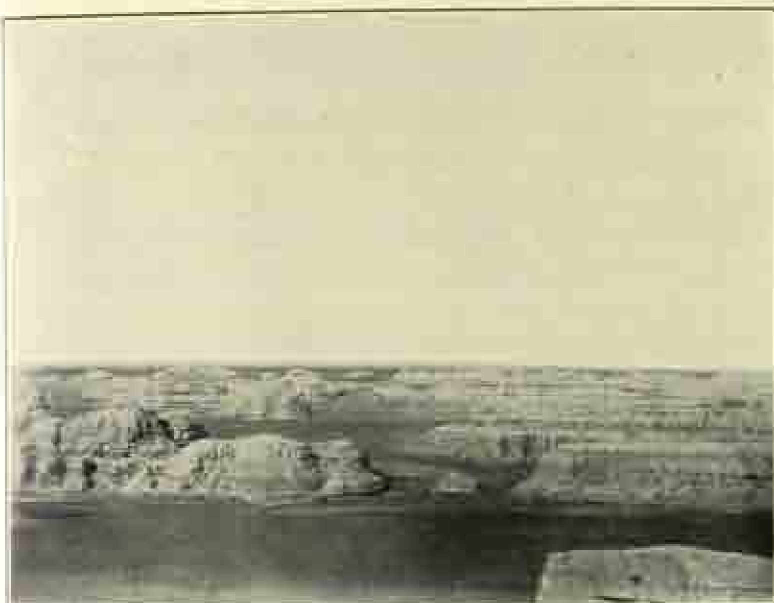
Snowy mountains sighted.

Far away to the south there stood up in glittering snowy whiteness the great range of mountains from above Tun-huang to Anambar-ula. It was a very imposing sight, which occasional clear views obtained in the course of my explorations along the Tun-huang Limes had impressed on my memory. The night's storm had deposited a light sprinkling of snow, too, on some of the low desert hills rising above the dark gravel glacis to the north. But this soon disappeared as the sun rose higher. The panorama around me was on a vaster scale and, in spite of its utter desolation, more varied than any my eyes had rested upon in Central-Asian plains.

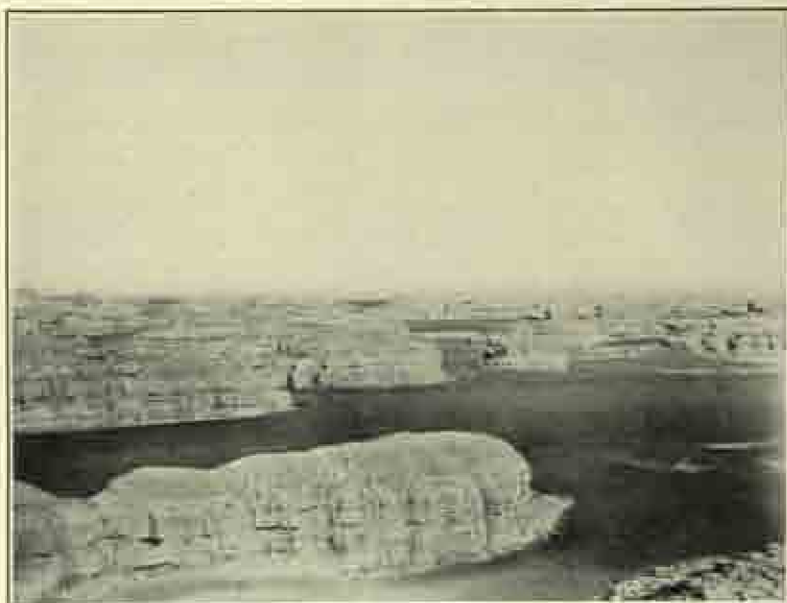
South-eastern portion of basin.

Satisfied as to the character and limits of the north-western portion of the basin, I now decided to reconnoitre it in the south-east. After moving for about two miles southward between rows of Mesas, we emerged on a level plain of sand fringed by clay terraces which wind-erosion had reduced

* See *Serindia*, v. Map No. 74. A. 3, with the correction indicated, *ibid.*, ii. p. 551, note 10.



184. MESAS IN ANCIENT LACUSTRINE BASIN BEYOND SU-LO-HO TERMINATION, LOOKING SOUTH-WEST FROM CAMP CXII.



185. MESAS IN ANCIENT LACUSTRINE BASIN BEYOND SU-LO-HO TERMINATION, LOOKING WEST FROM CAMP CXII.



186. MESAS IN ANCIENT LACUSTRINE BASIN BEYOND SU-LO-HO TERMINATION, LOOKING WEST-NORTH-WEST FROM CAMP CXII.



187. MESA RIDGE OVERLOOKING END OF ANCIENT LACUSTRINE BASIN, EAST OF BĒSH-TOGHRAK.

Hills of easternmost Kuruk-tāgh in distance.



188. VIEW WESTWARDS ACROSS CENTRAL PART OF DRY LACUSTRINE BASIN BEYOND SU-LO-HO TERMINATION.



189. TOKHTA ĀKHŪN, NIĀZ, MUḤAMMAD SHĀH OF CHARCHAN, AND TURDI, DĀK MAN, RETURNING FROM KUM-KUDUK.

Named from left to right.

to mere fragments of fantastic shapes. Between them reeds and scrub reappeared in patches. On digging through the sand for a well, water oozed out slowly from a layer of hard red clay at a depth of three feet; it tasted brackish, but was drinkable for animals. As we proceeded south-eastwards across this flat plain, the sand on the surface soon became permeated with moisture and remained so until we arrived, after a march of about three miles, at a broad ridge of dunes, forty to fifty feet in height, near the point where the caravan track crosses it.

The surface of this plain, like that of the sandy plain crossed on the previous day, was clear of reed growth; it manifestly marked a depression of the basin, which was periodically covered with water. The total absence here, too, of any salt efflorescence supported the belief that the disappearance of this water was due not to evaporation but to subterranean drainage. The view obtained from the ridge (Fig. 188) was almost as commanding as that from the Mesa near Camp cxii. It confirmed the observation made from that point that two more belts of wind-eroded terraces stretched down into the eastern part of the basin, and that there was an absence of features suggesting that surface drainage reached it to any appreciable extent from the unbroken gravel slope to the north-east. Ridge of dunes bordering basin.

There remained an important point to be settled in the course of our survey of this ancient lacustrine basin. It was whether it was possible for floods from the actual terminal course of the Su-lo-ho, as seen by us in the spring of 1907, to reach its southern edge. Below Toghrak-bulak, where the caravan route crosses the river (Map No. 35. c. 4), the survey of this terminal course had to be entrusted in April, 1907, to Rām Singh, as excavation work along the watch-stations of the Limes kept me busy farther away to the east. He had descended the river-bed to a point marked by his Camp 174, and sketching the river's farther course from there, had shown it on his plane-table with a distinct north-westerly bearing from about three miles lower down.

This, together with certain information supplied later by the Surveyor, had led me to show the termination of the river in Map No. 74. A. 3 of *Serindia* as immediately adjacent to the old lacustrine basin passed on our way from Bēsh-toghrak. When preparing the Personal Narrative of my second journey I had, rather rashly, as subsequent experience has shown, expressed the conjectural view that water from the Su-lo-ho still reached this ancient lake-bed in its southern portion.[10] Subsequent considerations had led me to doubt the correctness of this interpretation, and suggested that the true termination of the Su-lo-ho would have to be looked for farther west. Not content therefore with having instructed Lāl Singh to survey the river's course to its end, I was anxious now to examine the south-eastern portion of the old lacustrine basin myself. True termination of Su-lo-ho.

For this purpose I moved first to the south-south-west along and across three branches of the big ridge of dunes which, as the sketch of the ground in Map No. 35. c. 4 shows, projects from that direction into the basin. These branches of the sand ridge rose everywhere 40 to 50 feet above the reed-covered narrow valleys between them. The view obtained from them allowed me, after we had covered about three and a half miles in this way, to make sure that to the south there extended an unbroken line of gravel Sai, sloping up to a far-stretching plateau running approximately from east to west. In order to make certain that there was no gap in this barrier through which water from the terminal Su-lo-ho course, as sketched in the former map, might yet make its way into the basin, I then changed our direction to the south-east until we actually struck the Sai edge rising about eighty feet above the scrub-covered ground immediately below.[11] This gravel plateau extended without a break to the east, and we followed its edge in that direction for close on three Barrier between basin and terminal Su-lo-ho.

[10] Cf. *Desert Cathay*, i. p. 535.

[11] The stipple marking drift-sand which Map No. 35. c. 4 shows between this point of my route and the cliff symbols passing on either side of Lāl Singh's Camp 100, is wrong and ought to be removed. The ground is a bare gravel slope.

miles. The open view then obtained from a much broken hillock of slate which rose above it to a relative height of about two hundred feet allowed us to make quite sure that the barrier interposed by the plateau between the basin on the north and the Su-lo-ho bed on the south was complete. The course of the latter was, in fact, entirely masked by this barrier. The hillock had evidently served at one time as a landmark; for we found it crowned by a cairn, of uncertain date and origin.[12]

Return to caravan track.

Having thus cleared up a point of distinct topographical interest, we descended again into the basin below us in order to reach ground where fuel and some grazing might be available and touch be resumed with Surveyor Muḥammad Yāqūb and the body of our caravan. Moving to the north-east amidst Mesas of no great height we came, after about three miles' going, to a small plain with scrub and tamarisk-covered hillocks and there camped. The caravan track was found to run about half a mile farther north, through a well-marked depression beyond the area of erosion terraces. The elevation of this point of the basin is shown by the barometrical readings of Lāl Singh, who on his way from Tun-huang had also camped here, to be about 90 feet above Bēsh-toghrak.

Start for W. end of Tun-huang Limes.

Next morning we were joined by Muḥammad Yāqūb and the main caravan, who had halted at the usual camping-place, known as Achchik-kuduk, about two and a half miles nearer to Bēsh-toghrak.[13] I was thus able to make doubly sure of the mapping of the Su-lo-ho course right down to, and inclusive of, its terminal lake-bed by letting the Surveyor set out on this task from the point where our onward march of that day brought us to the plateau immediately overlooking the easternmost part of the basin. Having regard to the condition of our animals, all hard tried by the long series of preceding desert marches, and also to the difficulty of obtaining water, which we could expect to find only in, or close to, the actual bed of the Su-lo-ho, I felt obliged to march myself straight by the caravan track to the western end of the ancient Chinese Limes. I was the more anxious to reach this without delay that it was important to save time for supplementary explorations along the Limes, before proceeding to Tun-huang for the rest which men and animals alike were now in urgent need of.

Wadi leading down to lacustrine basin.

Thus what I saw, in the early part of our march on March 16th, of the eastern extremity of the basin was the same as has already been recorded in the account of my previous passage,[14] and the briefest description will suffice here. A short distance from Camp CXIII all wind-eroded terraces were left behind, and the ground now assumed the character of a shallow but unmistakable valley, bordered on north and south by steep cliffs of shale and consolidated gravel. Its width, as the map shows, steadily narrowed eastwards, while its bottom became like a Sai, covered with coarse gravel but supporting here and there patches of hardy scrub. The appearance of the valley was unmistakably that of a Wadi carved out by the intermittent floods of a river, and the upward slope of its bottom eastwards was perceptible to the eye. The volume of the floods that were once

[12] It has occurred to me since that this hillock might have served to mark the point where an earlier track practicable for carts coming from the side of Toghrak-bulak and the Limes could descend without difficulty into the basin. For to the east of this hillock the edge of the plateau seemed to fall off everywhere in steep cliffs like the cliffs of shale past which the present caravan track, practicable for camels but not for carts, descends into the deep Wadi forming the easternmost extension of the basin.

To make this present drop into the basin fit for cart traffic would require engineering, whereas by following the plateau edge about three miles farther, to the hillock above named, an easy slope for the descent and ascent of carts could be gained without any serious detour, on the line from Toghrak-bulak to Bēsh-toghrak. It is also quite possible that the ancient route between these points, where it led across the 'Three Ridges Sands', followed a line lying a few miles farther south than the present one.

[13] In Map No. 35. C. 4 the position of Achchik-kuduk, where our Camp 153 of 1907 stood, has by an oversight not been separately marked. The insertion of this 'camp number' against our Camp CXIII of 1914 is an error.

[14] Cf. *Desert Cathay*, i. p. 538.

at work here could be judged from the fact that the width of the Wadi a little before the caravan track left it for the plateau adjoining on the south was still about a mile, and that to reach the edge of this plateau an ascent of over a hundred feet had to be made between the steep cliffs of a small side gully.

Old bed of Su-lo-ho delta.

The configuration of the ground here corresponds exactly with that observed along the actual course of the Su-lo-ho both above and below Toghrak-bulak, where the river has cut its way between gravel-covered plateaus of the same description. Our surveys of 1907, as supplemented by Lāl Singh's work on his return from the present terminal basin of the Su-lo-ho, have shown that this Wadi debouching into the south-eastern extremity of the old lacustrine basin lies exactly in the continuation of two old beds, no longer filled by the Su-lo-ho but undoubtedly forming part of its earlier delta. The distance between the point where Rām Singh crossed the more southerly of the two beds and the place where the caravan track leaves the Wadi is only five miles, and the connexion between the two may therefore be considered as certain.[15]

Section IV.—THE DELTA OF THE SU-LO-HO

Survey of Su-lo-ho termination.

Before I proceed to sum up the conclusion which may be drawn from our survey of the dried-up basin just described, as regards its relation to the lowermost course of the Su-lo-ho on the one hand and the Bēsh-toghrak valley on the other, it will be convenient to indicate briefly the facts which the surveys of 1914 have established as to the actual termination of the river. As recorded in Map No. 35. B, C. 4, they show that the Su-lo-ho bed which passes Toghrak-bulak, and alone at present carries a regular supply of water during spring and summer, finds its end in a lake holding, at the time of the Surveyor's visit, a sheet of salty water about six miles in length and two miles across at its widest.

Terminal lake reached by Su-lo-ho.

Considering that the volume of water carried by the Su-lo-ho bed at Toghrak-bulak, as measured by me on March 17, 1914, amounted only to about 180 cubic feet per second, as against 1,800 cubic feet measured on May 2, 1907,[1] it is obvious that the area covered by the lake during the time of the spring and summer floods must be much greater. Probably most of the salt-encrusted ground shown to the east and south of it is then under water. To the west and north the seasonal expansion of the lake is limited by a great curving ridge of dunes which rises above it. The relative height of this was estimated by Lāl Singh at about three hundred feet. This ridge resembles in character the high 'Dawāns' of sands which are found along the terminal courses of the rivers that lose themselves in the Taklamakān.[2] It obviously owes its origin mainly to the silt which is brought down by the Su-lo-ho when in flood and after deposition is heaped up by the prevailing easterly winds.

Terminal course of Su-lo-ho.

Before reaching this terminal lake the actual course of the Su-lo-ho, for a distance of over twenty-four miles above and below Toghrak-bulak, occupies a narrow trench-like bed sunk deep between the gravel plateaus to the north of the western extremity of the Limes line. About eight miles below Toghrak-bulak the plateau on the right bank of the river gives way to a scrub-covered sandy depression; that flanking the left bank continues some nine miles farther down. For the

[15] Notwithstanding this, I should not have forgone the chance of following up the Wadi farther in the direction of the old bed, had I not felt obliged to retrace the route to Toghrak-bulak in person for the sake of solving an archaeological question. It was whether the line of ancient watch-towers thrown out along the route beyond the western end of the Limes had a continuation or not beyond T. II. The reconnaissance made on May 2, 1907, in this direction could not be held conclusive owing to dust-haze, and consequent 'low visibility'; cf. *Serindia*, ii. p. 640. However, the renewed search on March 16, 1914, was attended by the same negative result.

[1] See *Serindia*, ii. p. 639.

[2] Cf. *ibid.*, i. pp. 241, 451 sq.; iii. pp. 1239 sq.

short remainder of its course the river is overlooked by the bare plateau of gravel and stone, dotted with low isolated hillocks, which, as we have seen above, cuts it off from the dry basin northward.

Marshy basin holding lake.

To the south of the final portion of the river's course and to the east of the terminal lake extends the large basin, marshy for the most part, the eastern and southern borders of which had already been surveyed in the course of my explorations of 1907 along the south-western flank of the Limes.[2] This basin measures about twenty miles from north to south and close on thirty miles across at its widest. To the east and south it holds marshes which are fed by subterranean drainage passing under the great gravel glacis of the mountains south-west of Nan-hu (Map No. 36. C, D. 2) and also, perhaps, by occasional rain floods descending from their slopes. There is reason to assume that the greater part of the basin is boggy ground, impracticable during the late spring and summer months.

Old deltaic river branches.

Now, proceeding up the river above Toghrak-bulak, we find that there branch off from it, at distances of about eight and eighteen miles, respectively, two dry beds which undoubtedly formed part of the Su-lo-ho delta as it existed at a comparatively recent period. They, too, lie in deep-cut trenches between gravel-covered plateaus; but judging from the survey of Rām Singh, who crossed them in three places, and from what I saw of the southern bed near the ruined watch-station T. I, these trenches farther on are far wider than the bed which passes Bēsh-toghrak. The valley-like fosse containing the old bed was found at T. I to be about a mile broad and covered with reed-beds and scrub. The bank on the south rose very steeply about seventy feet above the bottom. When, on March 16, 1914, I revisited the ruined tower on its edge, the dry salt pools I had noticed below in 1907 were covered by large sheets of water. These were surrounded by salt-encrusted ground and looked as though they had been left behind by a big flood which in the preceding summer, or perhaps a year or two before, had found its way into the old long-abandoned channel represented by this wide Nullah. Luxuriant reed-beds were similarly seen by Rām Singh in 1907, where he crossed the other old river-bed farther north.

Judging from the recorded direction of these two dry river-beds there can be, I think, no doubt that the water they once received was carried into the Mesa-girt basin westwards through the gap marked by the above-mentioned Wadi. This gap divides the far-stretching plateau on the south from a corresponding outlier of the southernmost Pei-shan range which overlooks the trough of the terminal Su-lo-ho. The defile thus formed has its exact counterpart in that trough which the Su-lo-ho passes between Bulungir and An-hsi.[4]

Old terminal bifurcation of Su-lo-ho.

The fact that the basin thus reached by whatever water once passed down these old branches of the Su-lo-ho has no connexion with the present terminal basin to the south of it has its close parallel in the case of more than one river ending within a drainageless basin. We have an example of terminal bifurcation exactly corresponding in character within a region immediately adjacent to the drainage area of the Su-lo-ho. The Etsin-gol, uniting the waters of the rivers of Su-chou and Kan-chou, empties itself through deltaic branches, passing as close to each other as those of the Su-lo-ho, into two distinct lake basins, the Gashun-nōr and Sokho-nōr. These do not communicate and apparently occupy different levels.[5] Similarly it can be proved that the Oxus, down to comparatively recent historical times, fed two terminal basins as widely separated as the Caspian and the Sea of Aral.[6] We shall have occasion farther on to discuss an interesting instance of another such bifurcation in the case of the Su-lo-ho itself; for it can be shown that the river, from

[2] See *Serindia*, ii. pp. 633, 641 sqq.; *Desert Cathay*, ii. pp. 139 sqq.

[4] See Map No. 40. A. 3; below, pp. 372 sqq.

[5] See Map No. 44. C. 4; *Memoir on Maps*, p. 103.

[6] Cf. A. Herrmann, 'Die alte Verbindung zwischen dem Oxus und dem Kaspischen Meer' in *Petermann's Mitteilungen*, 1913, ii. pp. 70 sqq.

near its great bend below Yü-mên-hsien, sends a portion of its drainage, though only a very small one, eastwards into the terminal basin of Hua-hai-tzŭ.[7]

Whether the basin into which the old northern beds of the Su-lo-ho disembogued and the terminal basin fed by the present bed to the south received surface drainage simultaneously is a question upon which, in view of the limitations of the available evidence and without the guidance of expert knowledge, I do not feel competent to express an opinion. But what, I believe, can be asserted with confidence is that the ground surveyed between the outflow of the old northern beds and the belt of high sands east of Bêsh-toghrak exhibits surface features unmistakably pointing to its being an ancient lacustrine basin.

I refer to those belts of high eroded terraces and ridges which extend over so great a portion of it. To whatever geological epoch expert examination may hereafter assign the successive sedimentary deposits from which they have been carved out, or the commencement of the process of erosion, carried on now solely by the winds but probably once aided also by water action, it is certain that these Mesa clusters have their exact counterpart in those of other dried-up basins of undoubtedly lacustrine character situated within the same region. We find them not only in parts of the great basin once covered by the ancient Lop sea, from the north-east of Lou-lan to beyond Kum-kuduk,[8] but also wherever the lower Su-lo-ho bed widens out into lacustrine basins, like that occupied by the Khara-nōr lake or those now filled partly by marshes to the north and south-west of the Tun-huang Limes.[9] It is significant that the several lacustrine basins at the termination of the river of Hāmi, all found dry in November, 1914, have also similar belts of erosion terraces in their vicinity.[10] We are therefore justified in looking upon Mesa formations of this kind, wherever we meet them in the great drainageless zone between T'ien-shan and K'un-lun, as proof of an old lake-bed wholly or partially dried up and undergoing wind-erosion.

Ancient lacustrine basin proved by Mesa rows.

That the old lacustrine basin east of Bêsh-toghrak must have received its main supply of water from the Su-lo-ho is made quite certain by the topographical facts ascertained in the course of our surveys, especially with regard to the dry river-beds leading in its direction. Neither from the utterly barren Pei-shan, worn down into a succession of low ranges and plateaus, nor from the slopes in the south, covered with high ridges of dunes, could a surface flow of water ever have reached it sufficiently large to account for the extent of the basin. On this account it seems safe to assume also that the abundant subsoil moisture found in the depressions of the open central and western portions of the basin is derived from the Su-lo-ho.

Moisture in old lacustrine basin.

Judging from such observations as I was able to make, it appears to me far more probable that this supply now reaches the depressions by percolation than that it could be due to occasional inundation at the time of summer floods. The formation of temporary sheets of fresh water in those portions of the old lacustrine basin which in March, 1914, we found covered with moist sand and free from salt-incrustation, can fully be accounted for by the subterranean drainage of water from the old beds of the Su-lo-ho delta which had sunk through their gravel bottom to impermeable strata below; for the basin lies undoubtedly lower than those beds. Moreover the distance separating it from them and from the present course of the Su-lo-ho is small, indeed, when compared, e.g., with that which intervenes between the termination of the small streams that lose themselves on the gravel Sai north and west of Nan-hu (Maps No. 36. D. 1; 39. A. 1) and the marshy springs

Moisture derived from Su-lo-ho.

[7] See Map No. 40. C, D. 5; *Memoir on Maps*, p. 98; below, pp. 386 sqq.

[8] See above, pp. 291 sqq., 317 sq.

[9] See Map No. 38. A. 4; B, C. 3, 4; *Serindia*, ii. pp. 575 sqq., 589, 641 sq., 697, 717. The configuration of these Mesa clusters near the lower Su-lo-ho and their relation to plateau tongues cut out by water action can be studied more clearly in the 'Detailed Map of the ancient Chinese Limes', forming Pl. 33 of *Serindia*, iii.

[10] See Maps Nos. 31. D. 3; 34. A. 3.

fed by them subterraneously that are found along the Limes line from the Khara-nōr to the south of Toghrak-bulak (Maps No. 35. C, D. 4; 38. A. 4).

Subsoil drainage from lacustrine basin.

It is by subsoil absorption, too, that we can account on the one hand for the fact that these depressions within the old lacustrine basin are drained of their temporary sheets of water before evaporation encrusts their surface with salt, and on the other for the presence in the Bēsh-toghrak valley of the water that is found both in its wells and open bogs. The downward slope of the ground from the terminal course of the Su-lo-ho to the old Mesa-girt lacustrine basin is attested only by the general configuration and some aneroid readings consistent in their relative bearing. But farther on the regular line of measured levels supplies direct proof of a considerable and steady descent of the ground from the western edge of the basin down to the great eastern inlet of the ancient Lop sea.

Connexion between drainage of Su-lo-ho and Tārīm.

Thus the conclusion imposes itself that even now water from the Su-lo-ho finds its way beneath the surface into the great terminal basin of Lop, and that a surface connexion between the drainage of the Su-lo-ho and that of the Tārīm during an earlier but geologically recent period may safely be assumed by way of the Bēsh-toghrak valley.[10a] How far back that period lies is a question which it is beyond my competence to discuss. Nor do I think that without a further detailed examination of the whole area, preferably with the help of a trained geologist, such a discussion is likely to prove profitable. Here it will suffice to call attention to the fact that the evidence which proves the Su-lo-ho to have at an earlier epoch discharged its waters, wholly or partly, into the basin of the Lop sea, may claim distinct geographical importance. It means that the extent of the drainageless basin, conveniently known as that of the Tārīm, already a rival to that of the Sea of Aral, is greatly increased by its eastern limit being shifted from about the 92nd degree of longitude to the 99th degree; for there on the watershed towards the Pacific lie the easternmost glacier sources of the Su-lo-ho.[11]

Geographical interest of nexus.

But the extension of the limits of the chief drainageless basin of innermost Asia is of geographical interest in another respect, and one moreover with a quasi-historical bearing. It makes us realize better that the big area drained by the Su-lo-ho, whether we consider its deserts of bare stone or gravel, its oases, or its high Pāmīr-like mountain valleys, shares most of the essential physical characteristics of the Tārīm basin. This similarity of geographical conditions has its importance for history. It explains why the wide open trough through which the lower Su-lo-ho flows westwards could never within historical times support a large nomadic population nor form a convenient passage for great migrations of races.

Natural 'corridor' into Tārīm basin.

To a great and highly civilized power, however, like the China of Han times, the lower Su-lo-ho valley offered a most convenient 'corridor', created by nature, for that great trade route to Central Asia and the West which it wished to open, and for the systematic advance of the political control and military protection which that route was soon found to require. Thus the oasis of Tun-huang and the smaller ones scattered conveniently along the route leading to it from Su-chou came to serve the same purpose, in connexion with the expansion of Chinese trade and political influence westwards, as the strings of oases stretching along the foot of the T'ien-shan and the K'un-lun, without which the Tārīm basin could not have become the great natural highway for the interchange of the civilizations of China, India, and the West.

[10a] [It is very gratifying to find, since the above was written, that the former connexion here traced between the drainage areas of the Su-lo-ho and Tārīm was rightly assumed already by that great geologist, the late Professor E. Suess; see *The Face of the Earth* (transl. Sollas), iii, p. 174.]

[11] See Map No. 43. B. 4. *Desert Cathay*, ii, p. 326.

Section V.—TRANSPORT PROBLEMS OF THE ANCIENT LOU-LAN ROUTE

Traffic conditions on Han route.

Having now completed our survey of the whole of the desert ground which the ancient Han route crossed between the Tun-huang Limes and Lou-lan, we may now in conclusion briefly review the conditions under which traffic is likely to have been maintained along it. We may conveniently take the east as point of departure; for it was undoubtedly from the side of China that came most of the organization and of the resources that were needed for the maintenance of regular communication on a route beset with such great physical difficulties.

Start from ancient Limes Magazine, T. xviii.

The problem of assuring these resources for the troops and convoys moving along the route to the 'Western Countries' must always have demanded much care on the part of the Chinese administration. Of this we have direct archaeological evidence in the imposing ruins, situated on the line of the Limes to the east of the ancient Yü-mên and marked by me T. xviii, which my explorations and finds of 1907 have definitely shown to be those of an ancient Chinese magazine.[1] I have fully explained in *Serindia* the advantages which such an advanced base of supplies must have offered for the victualling of military expeditions, political missions, convoys, &c., whether going to or coming from Lou-lan.[2] The base itself could easily be reached by three marches from the town of Tun-huang.

Difficulties of route beyond Toghrak-bulak.

On the two first marches beyond it, which led along the Limes line to its extreme western point, T. iv. a, near Toghrak-bulak, two essential items of supply, viz. water and such forage as plentiful reed-beds and scrub can offer, were, no doubt, as conveniently obtainable in ancient times as they are at present. In addition, the ground, mostly hard gravel 'Sai', offered easy going for laden animals and carts. Conditions were not so favourable on the two following marches, which, as we have seen, crossed the extremity of the 'Three Ridges Sands' and the ancient lacustrine basin, before bringing the traveller to the vicinity of the present Bēsh-toghrak. The ridges of drift-sand encountered before reaching the latter point would necessarily present difficulties, especially for carts. But they are not likely to have ever been more formidable than the similar difficulties which traffic still encounters and somehow overcomes on the present 'highways' of Chinese Turkestān and westernmost Kan-su.[3] Water, too, was then probably more accessible than now at the eastern extremity of the old lacustrine basin.

Route along N. side of Bēsh-toghrak valley.

From the vicinity of Bēsh-toghrak, where, as we have seen, the 'Chü-lu granary' of the *Wei lio* itinerary may with some probability be located,[4] the route would inevitably lead along the northern side of the valley. Drinkable water from wells and some grazing on reeds and scrub were probably obtainable there over a marching distance of about eighty miles or four stages. This brings us to the vicinity of the point marked by our Camp cvi where vegetation at present ceases. It is somewhere near this point that, as explained before, the position of the '*Sha-hsi* well' may with good reason be looked for.[5] Considering how closely the salt-encrusted bed of the ancient sea beyond it approaches the foot of the cliffs marking the old shore-line, I think it very improbable that any appreciable quantity of vegetation could have been found beyond this point any more in Han times than now.

It seems safe to assume that, so far, the provision of water for men and beasts and of forage for transport animals could not have offered more serious difficulties in ancient times than are to

[1] See *Serindia*, ii. pp. 712 sqq.; Map No. 35. D. 4.

[2] See *ibid.*, ii. p. 715.

[3] Thus, e.g., belts of drift-sand are crossed by carts on the 'high road' from Yangi-hissār to Kāshgar, Map No. 5. A. 2; from Yārkand to Marāl-bāshi, No. 5. C. 3; west of the Khotan oasis near Kum-rabāt-pādshāhim, No. 9. C. 2. Very formidable ridges of sand were surmounted by our carts at two points on the way from Kan-chou to Mao-mei; see Map No. 43. D. 1.

[4] Cf. above, p. 308.

[5] See above, p. 309.

be found to-day on the Chinese 'high road' from An-hsi to Hāmi, where it crosses the barren stony plateaus of the Pei-shan in nine marches of an average of about twenty miles each.[6]

Absence of water and vegetation beyond.

Far more difficult conditions, however, had to be faced farther on. The experience we gained when tracing the ancient route from the Lou-lan side convincingly showed that, even in ancient times, neither water nor vegetation of any kind were to be found along it for a total marching distance of about a hundred and twenty-five miles. If the ancient route on the ground intervening between our Camps ci and civ led by a more direct line than the one followed in the course of our search, a saving of about twelve miles might have been practicable in distance. But this probably would have meant an increase in the length of the most trying portion of the journey—that leading across the hard corrugated salt crust of the sea-bed.[7]

Problem of 'supplies and transport'.

The problem of 'supplies and transport' presented by this section of the route must have been in ancient times quite as formidable as it would be now, except for two facts. One is that there existed then in the cultivated area around the Lou-lan station (L.A.) a western base of supplies such as would now have to be looked for on the Tārīm, some hundred and forty miles farther west; the other, that before the Kuruk-daryā ceased to flow, water and a plentiful growth of reeds and scrub could probably be found in most places along the ancient route from L.I., our Camp c, onwards. But the most serious difficulty remains: for a distance which neither laden animals nor carts nor men on foot could cover in less than five marches, those absolute necessaries of water and food-stuffs for men and beasts, besides fuel, had all to be provided from afar.

Question as to how problem solved.

The difficulty of assuring these necessaries for troop movements and regular commercial traffic over this portion of the ancient route was certainly far greater than any which military or trade enterprise has ever been called upon to face in modern times, with the assistance of railways and mechanical transport. Apart from one important but all too brief Chinese notice to be presently mentioned, we have no information as to how the Chinese pioneers and organizers of Han times solved this hard problem. But we know from definite historical and archaeological evidence that the problem was faced and was solved. Therefore the antiquarian student who possesses practical experience of the ground cannot decline to consider the question of the methods which may have been adopted, even though, in respect of details, only a conjectural solution can be offered.

Han Annals notice.

It is obvious at the outset that in order to facilitate the supply of water and other absolute necessaries recourse would be had to a system of depots for the use of the troops, convoys, &c., moving along the route. We find the use of this expedient on the Lou-lan side directly attested by an interesting passage of the Former Han Annals to which I have already referred, but which on account of its special bearing may here be quoted once more.[8] 'Now the extreme eastern border of the kingdom of Lou-lan where it approached nearest to China was opposite to the *Po-lung-tui* 白龍堆 ('White Dragon Mounds'), where there was a scarcity of water and pasture; and it always fell to its share to provide guides, to carry water and forward provisions to meet the Chinese convoys; but being frequently exposed to the oppressive raids of the soldiery, they at last resolved that it was inconvenient to hold intercourse with China.'

Transport of water, &c., from Lou-lan.

Our previous discussion of the topographical facts has made it quite certain that by the 'White Dragon Mounds' are meant the arrays of salt-coated Yārdangs which the route had to pass through on either side of the old sea-bed. If the above translation expresses the exact meaning of the Chinese text, it is permissible to assume that the eastern shore of the sea-bed was considered 'the

[6] Regarding the physical conditions prevailing on this route, first opened by the Chinese in A.D. 73, cf. *Serindia*, iii. pp. 1141 sqq. From Chang-lui-shui, Map No. 34. D. 3, onwards, patches of cultivation and plentiful grazing are found on the way to Hāmi.

[7] See above, pp. 300 sq., 311 sq.

[8] See above, p. 309; Wylie, *J. Anthrop. Inst.*, x. pp. 27 sq.

eastern border of the kingdom of Lou-lan', and that to this point were carried supplies of water and provisions against the arrival of the Chinese missions. In order to appreciate rightly the burden involved in this obligation, it is enough to bear in mind that this shore was fully fifty miles from the nearest point where water could be found on the Lou-lan side, near L.I., and that over twenty-five miles more had still to be covered to reach thence the nearest cultivated ground near the Lou-lan station. It is possible that the springs of Yetim-bulak and Kaurük-bulak may then have furnished drinkable water, which they no longer do now, and also some forage in the shape of reed-straw and scrub. But the distance to be traversed from these points would not have been appreciably less.

Supplies drawn from Tun-huang.

For the two long marches during which the ancient route skirted the eastern shore of the dried-up sea, between Camp cvi and the vicinity of Camp civ (Map No. 32. c. 3, 4), the supply of water, &c., would probably have entailed less effort if arranged for from the side of the Bēsh-toghrak valley; for on that side the flat stony Sai favoured transport and the severe trial implied by the crossing of the great expanse of hummocky salt crust would be avoided. But on the other hand it should be remembered that while water, fuel and reed-straw could be obtained near the western end of the Bēsh-toghrak valley, all supplies needed by men had to be drawn from the side of Tun-huang, the nearest cultivation being fully 220 miles away from Camp cvi, the approximate position assumed for the *Sha-hsi* well.

Parallel of conditions on present An-hsi–Hāmi road.

For the conditions under which traffic was maintained on the eastern portion of the route, those observed along the present An-hsi–Hāmi road through the Pei-shan 'Gobi' may supply an approximate parallel. For the first nine of its eleven stages no local supplies are obtainable beyond a limited amount of water, distinctly brackish in places, and such reed-straw as is brought on camels to the wretched hovels representing postal 'stations', from patches of vegetation more or less distant, and sold at exorbitant prices. Yet we know that, in spite of these great difficulties of supply, the Chinese military administrators carefully prepared, and finally in 1877 accomplished, the reconquest of Chinese Turkestān after the great Muhammadan rebellion. For this purpose they contrived gradually to assemble a considerable force, probably not less than forty thousand men, in the Hāmi oasis, having moved them from Su-chou to An-hsi and thence in successive small detachments along this desert route. Ever since its first opening by the Chinese in A.D. 73,[9] it had served as the main line of communication between China and Central Asia. It is therefore certain that during former periods also of Chinese expansion westwards, under the Later Han, the T'ang dynasty, and again in the time of Ch'ien-lung, it must have seen a great deal of troop movements and traffic under conditions closely resembling those which prevail there at present.[10]

Difficulties of Lou-lan route far greater.

But when we compare the conditions on the An-hsi–Hāmi road, whether in the past or the present, with the difficulties which beset the use of the ancient Lou-lan route, a very important difference must be noticed. Ten marches across the Pei-shan Gobi bring the traveller to the outskirts of a fertile oasis, exceptionally well fitted by nature to serve as a bridge-head for the route crossing the desert south-eastward. On the ancient Lou-lan route a journey of corresponding length would leave him still one hundred and twenty-five miles or so away from the nearest water and a hundred and fifty miles from Lou-lan cultivation, and Lou-lan, owing to its precarious irrigation and other physical conditions, could never have offered resources equal to those of Hāmi.[11]

[9] Cf. Chavannes, *T'oung-pao*, 1907, p. 156.

[10] Cf. *Serindia*, iii. pp. 1143 sq., 1147, 1149. The effort involved in the use of the route across the Pei-shan for operations on a large scale is well illustrated by the record of Hsüan-tsang's adventurous crossing of this desert in A.D. 630. It shows us the trials attending travel along the route during times when Chinese policy of seclusion barred its use for intercourse with the 'Western Regions'; cf. my paper, 'The Desert Crossing of Hsüan-tsang', in *G.J.*, 1919, pp. 265 sqq.

[11] See *Serindia*, iii. pp. 1148 sq.; also the description of the Lou-lan territory in the Former Han Annals, Wylie, *J. Anthrop. Inst.*, x. pp. 23 sqq.

Use of camel transport.

This fact and the great distance, over two hundred miles, from the base at Tun-huang must have vastly increased the difficulties of the problem of supplies and transport, so far as the western portion of the old route to Lou-lan was concerned. Yet, although we shall never know the exact details of the organization, it is certain that the problem had been courageously faced ever since the Emperor Wu-ti first launched his trade missions and then his expeditions to the Tārīm basin and beyond. As the greatest obstacle of all was, no doubt, the absence of water, it seems safe to assume that the fullest possible use was made, on this inhospitable tract, of camel transport, as being least in need of regular watering. That camels were particularly plentiful in Lou-lan is attested by the notice of the territory in the Former Han Annals.[12] The employment of large trains of camels for the carriage of water, provisions and fuel would undoubtedly offer the best means of overcoming the obstacles to traffic presented by this wholly waterless ground. But it must be remembered that during the four hottest months of the year, i. e. from May to August, camels could not possibly be worked in the Lop basin without enormous losses.[13]

Probability of cart traffic.

Account should also be taken of the probability that a considerable proportion of the traffic along the route was conveyed in horse-, mule-, or ox-drawn carts, a mode of transport for which the Chinese all through Kan-su and Central Asia still retain a time-honoured attachment, and the use of which is attested by Chinese documents from the Lou-lan site.[14] It offered undoubted advantages in the matter of ease, and its employment would encounter no extraordinary obstacle on either side of the wholly waterless portion of the desert. But what difficulties it necessarily involved on the five long marches without water is revealed by a simple calculation. More than one-half of the useful load of a mule- or horse-drawn cart would be absorbed by the water and fodder alone needed for the animals, while the rest would barely allow for the carriage of four passengers with a minimum of baggage, or of the water and rations required by four mounted men.[15]

[12] Cf. Wylie, *J. Anthrop. Inst.*, x. p. 25: 'They have asses, horses, and many camels.' For references to camels in Lou-lan documents, see Chavannes, *Documents chinois*, Nos. 839–41.

[13] The dangers attending the working of camels in the plains of the Tārīm basin during the hot season were brought home to me very sadly by the subsequent loss of most of the fine animals with which my caravan had started from Kāshgar in June, 1906; cf. *Desert Cathay*, i. pp. 220, 260. Yet they had been worked only for a comparatively small number of marches, and had all the relief that ample grazing and frequent halts at the comparatively cooler foot of the hills could give.

The daily maximum temperatures during June and July in the Lop desert may rise to heights that could well hold their own against those of the Panjāb plains and of Sind at the same season. Of course the night temperatures would probably be much less.

[14] For the mention of 'oxen carriages' and carts, cf. two Chinese records among Dr. Sven Hedin's finds at L.A., in Conrady, *Chinesische Handschriftenfunde Sven Hedins*, pp. 81, 88. These documents do not make it clear where the vehicles were to be used.

The fragmentary document No. 755 from L.A. vi. ii, Chavannes, *Documents chinois*, p. 164, refers to a 'cart and oxen' that a petty official is dispatched to examine and try in camp. Whether they were to be employed locally or for a distant journey we are not told.

[15] This calculation is based on the figures I obtained from Col. Scott-Moncrieff's *R.E. Field Service Pocket-book* (2nd ed.). This indicates 8 gallons as the daily ration for a horse, mule, or ox, with an approximate weight of 80 lb. To this may be added a minimum of 8 lb. for fodder *per diem*. Thus, assuming that a two-horsed cart had to cover a distance of 125 miles in the course of five days, with four halts between at places to which water, &c., would have to be brought along from the starting-point, not less than 640 lb. would have to be carried in the weight of water alone, with about 120 lb. added for the weight of the cask. If we take into account the weight of fodder rations for the same four stages, about 64 lb., provision for the needs of the draught-animals would take up 824 lb., out of a total useful load of 1,344 lb.

During the winter months the amount of water might, perhaps, be reduced somewhat below the regulation ration. But on the other hand at that season and well into the spring, when freezing Burāns occur, the carriage of adequate fuel for the warmth needed by men would materially increase the load.

It has occurred to me, while thinking over this commissariat problem both on the ground and since, that the use of camels as draught-animals might considerably facilitate its solution; for assuming that the proportion between the useful load which a camel can draw in a cart and that which it can carry on its back is approximately the same as in the case of a horse or mule, viz. 4 : 1, it is obvious that a great deal more weight could be spared in carts for the transport

In the case of carts drawn by oxen the proportion of profitable load would scarcely work out more favourably, considering that the rate of progress would be far slower. The fact that bullock-carts are scarcely ever met with on the present main routes of Chinese Turkestān seems to suggest that there may be local reasons operating against their general employment.

Records of route used by Chinese missions.

Notwithstanding the discouraging conditions under which traffic was thus carried on, and the very great hardships which the use of the route must have involved, especially for large bodies of travellers, we read in Ssŭ-ma Ch'ien's history that Chang Ch'ien about 119 B.C. proceeded by it to the Wu-sun country as 'leader of an expedition consisting of 300 men, each with two horses, and oxen and sheep in myriads'.[16] The same contemporary record shows that, during the years immediately succeeding, commercial and political missions from China followed this route in rapidly increasing numbers.[17] As they were often exposed to attack and robbery in Lou-lan and Ku-shih (Turfān), a military expedition numbering 'more than seven hundred cavalry' proceeded in 108 B.C. to chastise those territories.[18]

Dangers of Lou-lan route referred to.

But of the physical difficulties which all these enterprises encountered on the Lou-lan route, we gain a true idea from the account given by Ssŭ-ma Ch'ien of the view held among the people of Ta-yüan or Farghāna: 'China is far away from us, and in the Salt Lake [region] numbers of travellers have met with destruction. To the north of it one falls into the hands of Hu [Tartar] robbers; in the south there is dearth of water and vegetation. . . . Chinese missions consisting of merely a few hundred members have quite commonly lost more than half their staff by starvation. If this be so, how much less could the Chinese send a big army?'[19]

Chinese expedition to Farghāna.

In spite of the great obstacles so graphically recorded in this passage, the 'Èrh-shih general' (Li Kuang-li) was none the less ordered to set out in 104 B.C. by the Lou-lan route for the distant goal of Farghāna, 'with six thousand cavalry of the feudal states and several hundred thousand men, being recruits selected from the riff-raff of the provinces'. We are told that the Chinese army

of goods, supplies, &c., and that these could be carried to a more distant destination. Camels during the winter cold and even in the late autumn might well go without water for a week or longer, and would, if in good condition, need but little in the way of reed-straw on the journey.

Against such an assumption it must, however, be mentioned that the use of camel-carts is not known nowadays in the Tārīm basin or in Kan-su. I have been told of their employment in portions of Dzungaria, e.g. in the sandy tracts north of Bar-kul, and they are actually to be seen about Delhi and in certain neighbouring tracts of the Panjāb. It should also be remembered that advantage from this change of transport, just on the ground for which camels are best adapted, could be secured only if the other draught animals used in bringing the carts to the limit of the waterless area were taken back over the route they had come by. Arrangements for such a substitution of transport would require a great deal of organization and care, and could certainly not be resorted to at all in the case of privately owned transport such as, no doubt, was used in the case of trade caravans and the like. Even in the case of Government convoys, &c., the practical difficulties attending such 'transhipment' at stations in the desert would be many and serious.

My friend, Major Frank Douie, D.S.O., R.E., has kindly called my attention to the help that might have been derived from the additional expedient of large 'dumps' of water or ice, reed-straw, and fuel at the stages devoid of resources of any kind. The loads carried on carts moving with detachments of troops could in that case have been confined to the rations needed by the men and animals on these marches and to the indispensable *impedimenta* of the former. The transport of the supplies to be 'dumped' would have been facilitated by the use of camel-drawn carts. Major Douie's suggestion finds support in the fact that the use of depots along that portion of the route which lay in the Bēsh-toghrak valley is distinctly attested, at least at one point, by the *Wei lio's* mention of the '*Chü-lu* granary'; cf. above, p. 308.

The absence of any traceable remains of such 'dumps' or depots can, I think, be adequately accounted for. On the one hand there were no materials for buildings of any sort available on the ground which the waterless portion of the route crossed. On the other, it is certain that such occasional caravans, individual travellers, &c., as still continued to move along the Lou-lan route during more than two centuries after the easier route via Hāmi had come into general use both for trade and military movements, would naturally use up, to the last stick or straw, whatever may have remained at those 'dumping-places' of materials capable of being turned to use for fires, &c.

[16] Cf. Hirth, 'The Story of Chang K'ién', *J.A.O.S.*, xxxvii. p. 101.

[17] See *ibid.*, pp. 103 sqq.

[18] Cf. *ibid.*, p. 106.

[19] See *ibid.*, p. 109.

'crossed the Salt Lake', but on reaching the confines of Ta-yüan 'consisted of not more than a few thousand men'. Finally on its return to Tun-huang after a fruitless campaign of two years 'only one or two out of every ten soldiers were left'.[20] A fresh effort was then made under the Emperor's orders to repair this failure. When the newly formed army left Tun-huang in 102 B.C., we are told by Ssŭ-ma Ch'ien that it 'consisted of sixty thousand men, not counting those who followed as carriers of secret supplies of extra provisions; a hundred thousand oxen; more than thirty thousand horses; donkeys, mules, and camels numbering myriads, and a commissariat well stocked with provisions, besides arms and cross-bows. All parts of the Empire had to bestir themselves in contributing offerings'.[21] For the transport of provisions intended for this huge expeditionary force all minor offenders from the whole Empire were made to serve as carriers, while 'wagoners with their carts went in endless lines to Tun-huang'.

Heavy losses incurred.

As the Chinese army on its arrival at the capital of Ta-yüan is reported by Ssŭ-ma Ch'ien to have consisted of thirty thousand men, the numbers with which it and its attendant host are said to have started by the Lou-lan route are probably not greatly exaggerated. But the losses by which ultimate success was purchased in the vast adventure were proportionate to these efforts; for we read that 'when the army [on its return] passed the Yü-mên Gate, there were left of it scarcely more than ten thousand men and a thousand horses'.[22]

Triumph of Chinese organized enterprise.

It is hard to form an adequate conception of the enormous scale of the supply and transport arrangements which such enterprises along the Lou-lan route must have called for, or of the extent of human suffering which these terrible desert wastes must have witnessed. But since the substantial correctness of the contemporary record left by the 'Herodotus of China' is not subject to doubt, we must recognize in this conquest of all the formidable difficulties of the desert route one more proof of that wonderful power of organization which likewise enabled Chinese leaders to triumph over nature's greatest obstacles in other regions and other epochs.

[20] See Hirth, 'The Story of Chang K'iên', *J.A.O.S.*, xxxvii. p. 110.
[21] Cf. *ibid.*, pp. 111 sq.
[22] See *ibid.*, p. 115.

CHAPTER X

TO TUN-HUANG AND AN-HSI

SECTION I.—THE LIMES LINE NORTH-WEST OF TUN-HUANG

FROM March 17th my work lay once more along the line of that ancient Chinese Limes which memories of fruitful labours in 1907 had so often brought back to me. I was very conscious of the gaps which circumstances had then obliged me to leave in the systematic survey and exploration of its remains, and the desire to fill these up as far as possible was one of the main reasons for my return to this region. The explorations I was now able to resume on the Tun-huang Limes were but the complement and continuation of those which have since been fully recorded and discussed in *Serindia*. Therefore in dealing with the results of my later researches I shall have the advantage of being able, for all general matters connected with the history, purpose and organization of the Tun-huang Limes, to fall back upon the detailed review of them already furnished in Chapter XX of that work. On the other hand, the account to be here given of my further explorations is necessarily hampered by the fact that translations of none of the Chinese documents obtained from the ruins of the sections of the Limes that were examined on this occasion are as yet at my disposal. [Since this and the next two chapters were written, M. Maspero has kindly supplied me with preliminary renderings of most of the documents recovered, accompanied by notes on essential points of their contents. With his permission I have added to my text and foot-notes such supplementary information of a direct archaeological bearing as could safely be gleaned from the materials made available in advance of the proposed publication of these and other Chinese records. Such additions have been distinguished by brackets.] Renewal of Limes explorations.

My first two marches along the Limes, on March 17th and 18th, brought me from Toghrak-bulak to the ancient Magazine T. XVIII and were extended by a reconnaissance of the secondary line of wall to the south of Yü-mên. They were the occasion of a variety of supplementary observations of antiquarian interest. But as these have already been duly embodied in the account I have given in *Serindia* of these sections of the Limes,[1] I may here content myself with indicating in a foot-note certain points of interest offered by the additional photographs I secured at some of the ruined watch-stations.[2] It may also be mentioned here that a number of small objects which I First marches along Limes.

[1] See *Serindia*, ii. pp. 634 sqq., 656 sq., 692 sq.

[2] Taking the photographs from the westernmost Limes, we have first in Fig. 194 the much-decayed watch-tower T. IV. a, built on a clay terrace and overlooking the depression in which we may locate the terminal station of the wall and the 'Well of the Protector General'; cf. *Serindia*, ii. pp. 634 sqq.; above, p. 308.

Fig. 190 shows the reed-covered north-eastern corner of the great marshy basin in which the Su-lo-ho terminates, as seen to the south of T. IV. a. In the foreground, at the foot of the steep clay terrace, there is seen the beginning of the Limes *agger*, built of reed fascines and stamped clay. The figure of the man standing marks its foot on the inside. For sketches showing the construction of the *agger*, see Pl. 13.

Farther on, the line of the wall, decayed into a mere low mound and overgrown with reeds, could be made out by the naked eye running straight south towards the large clay terrace on which my Camp 171 a. of 1907 had stood; cf. *Serindia*, ii. p. 635.

In Fig. 192 the view from the clay terrace bearing T. IV. a lies to the ESE. In the foreground the straight narrow mound, covered with reeds, marks the line of the decayed Limes wall. The middle distance shows faintly the high banks of earth in which, I believe, we may recognize the decomposed clay ramparts of an ancient Chinese *castrum*; cf. *Serindia*, ii. pp. 637 sq. Far away in the distance the watch-towers T. IV. b and c can just be made out, rising above tongue-like projections of the gravel glacis.

Fig. 191 shows the stretch of the Limes wall where it descends from the gravel plateau near T. III and extends in

picked up on my renewed visit to the ruins along the portion of the Limes previously explored will be found recorded in the Descriptive List below.

Work at watch-towers S. of Khara-nōr.

I may accordingly turn at once to the ground where I knew that there were remains of the Limes still waiting to be cleared. I refer to the series of ruined watch-stations to the south of Lake Khara-nōr, of some of which I had been able in May, 1907, to obtain a distant view, but which practical considerations had obliged me reluctantly to leave for future exploration.[3] But now again the task immediately before me was beset with difficulties of a similar kind; for the supplies both for men and beasts brought from Mīrān were running short, labour for excavation was limited to my own few men, and the need to husband time for the spring's work elsewhere was pressing. So on March 19th I sent off ahead to Tun-huang all heavy baggage together with those men who could not be used for digging, thereby saving their rations for the rest. We were preparing to fix our camp at the mouth of a marshy depression near the watch-tower T. XXII. d, sighted in 1907 but not then visited (Map No. 38. A. 4), when a very fortunate chance made us fall in with a small party of Lopliks who had helped in our digging at Mīrān and were now taking their drove of donkeys back from a trade venture to Tun-huang. What with the few men they could spare and a couple of Chinese obtained from a party who were grazing their camels near the same springs, which are known as *Ta-ch'üan*, a set of diggers for the next few days' work was readily improvised.

Methods of exploration adopted.

In order to carry out the exploration of the line of the Limes eastwards expeditiously and yet thoroughly, I found it necessary once again, as in 1907, to push reconnaissances for its survey ahead in person. My capable 'handy man' Naik Shamsuddīn was to follow behind with the improvised gang of diggers and to clear any remains I had traced. The preliminary search for the ruined watch-stations and the line of wall which might have connected them was attended with interesting experiences, and in places to which the spring inundation from the Su-lo-ho extended was not free from difficulty. But for the reasons already explained in *Serindia*,[4] it will be best to follow the topographical order in recording my observations on the physical features of the ground and on the results yielded by the survey and clearing of the ruins.

'Wet border' provided by Khara-nōr.

The series of watch-stations starting from T. XXII. d and stretching along the southern shore of the Khara-nōr forms the eastward continuation of what I have described in *Serindia* as the 'lake section' of the Limes.[5] I have already explained there that where this section faced either the Khara-nōr or the wide lacustrine marsh-bed farther to the west, lake and marsh belt had been utilized as a sort of 'wet border' line to replace the wall of the Limes.[6] This explains why no

very fair preservation for a distance of about three miles across the depression towards the next watch-tower T. VII; cf. *Serindia*, ii. pp. 569, 656; iii. Pl. 33.

In Fig. 204 this tower T. VII appears as seen from the south-west, with the upper portion on the south face still showing rough foot-holes on the plastered surface intended to assist a person climbing to the top. The holes on either side once carried beams to secure the ropes that had to serve as hand-rails. Along the north-east corner the ends of thick ropes of twisted reeds are exposed, which, embedded in the stamped clay, helped to bind together posts of Toghrak wood reinforcing the structure; cf. *Serindia*, ii. p. 571.

In Figs. 193 and 198 we see stacks of reed fascines, more or less petrified through the action of salt, as they rise in rows, quincunx fashion, near the watch-towers T. XI and T. XIII respectively. As fully explained in *Serindia*, ii. pp. 677 sqq., these regular stacks were primarily intended to keep material conveniently ready for the lighting of signal fires.

Fig. 195 shows the watch-tower T. XIII, with the remains of rooms adjoining on the east, as excavated in 1907, and of a flight of stairs once leading to the roof; cf. *Serindia*, ii. p. 681. Comparison with Fig. 180 in *Serindia* illustrates how slight is the change which seven years' exposure has caused in the condition of the ruin.

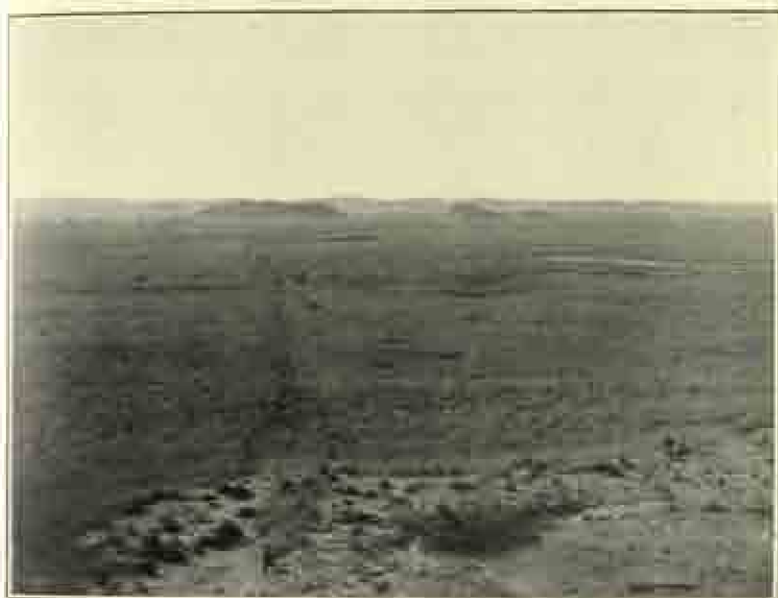
Figs. 200 and 201 bring before our eyes the remarkable state of preservation in which the line of the wall, built here as along most sections of the Limes west of Tun-huang of layers of reed fascines and stamped clay, has survived for some little distance east of T. XIII. As seen by the figures standing at its foot, it still rises in places to a height of over 10 feet above the sand and gravel heaped up at its foot; cf. *Serindia*, ii. pp. 681 sq.

[3] See *Desert Cathay*, ii. pp. 157 sq.

[4] Cf. *Serindia*, ii. p. 632.

[5] See *ibid.*, ii. pp. 717 sqq.

[6] Cf. *ibid.*, ii. p. 718.



190. NORTH-EASTERN CORNER OF TERMINAL BASIN OF SU-LO-HO, WITH LINE OF LIMES AGGER, LOOKING SOUTH FROM T. IV. a.



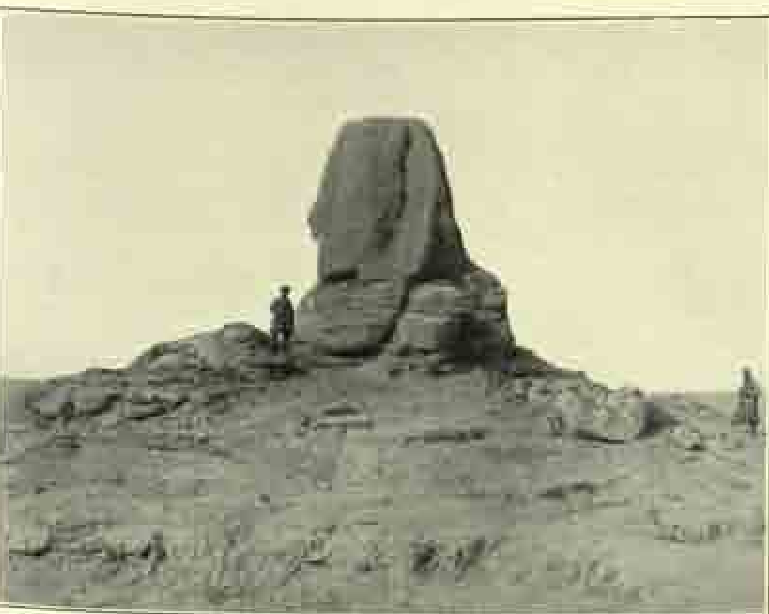
191. LINE OF LIMES WALL STRETCHING EASTWARDS FROM WATCH-TOWER T. III.



192. VIEW FROM TOWER T. IV. a EASTWARDS ACROSS TERMINAL PORTION OF LIMES.



193. PETRIFIED STACKS OF FASCINES OUTSIDE WATCH-STATION T. XI, TUN-HUANG LIMES.



194. WATCH-TOWER T. IV. a AT WESTERN EXTREMITY OF TUN-HUANG LIMES.



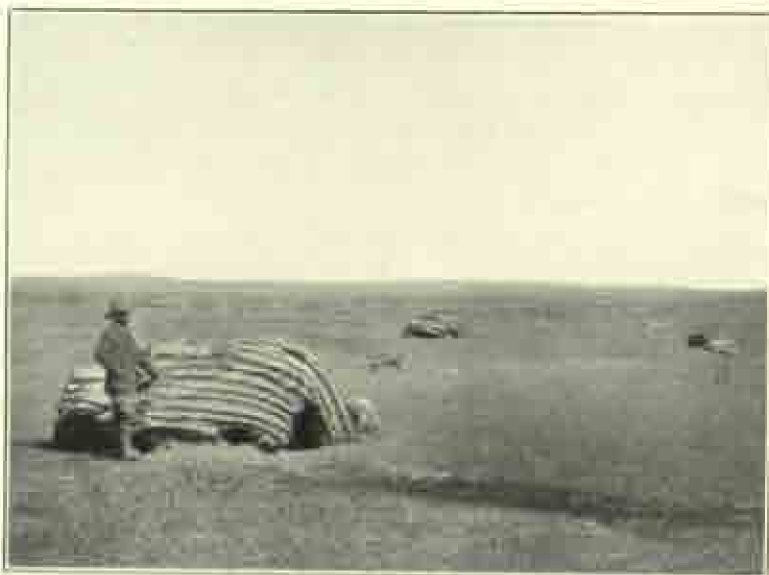
195. WATCH-TOWER T. XIII OF TUN-HUANG LIMES WITH QUARTERS CLEARED IN 1907.



196. VIEW NORTHWARD ACROSS KHARA-NÖR FROM TOWER T. XXII. b.



197. SHORE OF KHARA-NÖR, LOOKING EASTWARDS FROM TOWER T. XXII. A.



198. PETRIFIED STACK OF REED FASCINES NEAR WATCH-TOWER T. XIII.



199. WATCH-TOWER T. XXII. A OF LIMES, STANDING ON RIDGE ABOVE KHARA-NÖR.



200. LINE OF LIMES WALL NEAR TOWER T. XIII.



201. REMAINS OF LIMES WALL STRETCHING EAST OF TOWER T. XIII.

remains of the wall could be traced over the space, about ten miles in direct distance, which extends from the tower T. xxii. c, near the outflow of the Khara-nōr, to the vicinity of the station T. xxiii. b. The Khara-nōr, as seen in Map No. 38. A. 4, attains here its greatest width, and in March, 1914, was an open sheet of water, over two miles wide in most places and fringed by a marshy belt on the south. It must have offered adequate protection against attack almost throughout the year; for it may be doubted whether the Khara-nōr, on account of the salinity of the water left in it after the spring and summer flood has passed, is ever covered with solid ice for very long.

Position of watch-towers T. xxii. d–f.

But about the middle of this stretch of lake shore there projects a small peninsula of higher ground marked by numerous erosion terraces, obviously a continuation of the narrow tongue-like plateau which projects from the south towards Ta-ch'üan.[7] This projecting portion of the shore considerably reduces the width of the lake-bed to the north where there is deeper water. At the same time it affords positions of commanding height from which to watch the stretch of deep water as well as the shallow marshy bays on either side. It is, no doubt, for this topographical reason that we find this higher part of the lake shore occupied by three watch-stations, T. xxii. d–f, distributed over a distance of about two miles. The photograph, Fig. 197, taken from T. xxii. d, illustrates the character of the ground which they were intended to guard.

Clearing of watch-post T. xxii. d.

The tower T. xxii. d (Fig. 199) stands on an eroded clay ridge rising steeply to about 80 feet above the marshy bay to the west and stretching for about 300 yards from ENE. to WSW. The tower was 16 feet square, as shown by the plan of the station (Pl. 13), and stood in its ruined condition to a height of about 9 feet. The sun-dried bricks of which it was built measured 14 by 7½ inches with a thickness of 4 inches, and thus conformed to the size prevalent in the structures of the Tun-huang Limes.[8] Thin layers of reed-straw were inserted between every four courses of bricks. Adjoining it to the west and south-west, I could just trace the badly decayed walls of three rooms which, no doubt, had served as quarters. One of these, ii, had along its northern side a passage, only 2½ feet wide, the floor of which was covered with ashes. It appears likely that this narrow passage may have served, like the *k'ang* of modern Chinese dwellings, as a stove to heat the adjoining room.[9]

Finds at T. xxii. d.

From the mass of refuse which covered the ground immediately to the south-west of the little station, there were recovered a dozen Chinese records on wooden slips, most of them fragmentary, as well as the small miscellaneous relics of wood and fabrics described in the List below (Chap. XII. sec. iii). Among the former may be mentioned the lug of a wooden bowl, lacquered red, T. xxii. d. 02; the wooden comb, T. xxii. d. 04, and two wooden spatulas, T. xxii. d. 05–6 (Pl. XLVII). The fragments of fabrics are mainly plain silk in different colours, but comprise also pieces of woollen fabric, T. xxii. d. 08–9, and a coarse textile which seems to be cotton, T. xxii. d. i. 01, a very rare material on the Limes. A much-clipped *Wu-chu* coin was also found here.

Chinese records from T. xxii. d.

[Of the documents found here T. xxii. d. 015 offers special interest. It bears a date corresponding to December 16th, A.D. 47, and appears to be a kind of tally (*ch'üan*) signed conjointly by the 'signal post commandants' of *Tsung-min* 宗民 and *Shou-kuan* 受官.[10] The former designates himself as belonging to *P'o-hu* 破胡, a subdivision or 'barrier' of the Limes of which the 'western section' is mentioned also in T. xxviii. 36, No. 621 of M. Chavannes' *Documents*. It

[7] In Map No. 38. A. 4 the Mesa symbols ought to have been extended from Ta-ch'üan farther towards the lake right up to T. xxii. d–f.

[8] Cf. *Serindia*, ii. p. 737, note 14.

[9] Is it possible that the similarly narrow passage in the quarters of T. xii. a, from which a series of important documents in Early Sogdian was recovered in 1907, had originally been meant to serve the same purpose? Cf. *Serindia*, ii. p. 669; iii. Pl. 39.

[10] The term read here and elsewhere by M. Maspero as *sui* 隧 and translated as 'poste de signaux' corresponds to the one read by M. Chavannes as *tui* 隊, 'company'; cf. *Serindia*, ii. p. 747.

appears probable that *P'o-ku* was the name of the Limes portion lying to the east of P'ing-wang which extended from Yü-mên as far as T. xxii. c.[11] The slips T. xxii. d. 018, 019 record deliveries of grain on different dates of A.D. 64. The fragment of a calendar, T. xxii. d. 024, may belong either to 10 B.C. or A.D. 115.]

Watch-tower T. xxii. e cleared.

About three-quarters of a mile to the east, across the marshy reed-covered bay seen in Fig. 197, an eroded ridge stretched from east to west, occupied by the ruined watch-tower T. xxii. e. It measured about 14 feet at its base and stood to a height of 9 feet, where it showed the remains of a small conning room about 6 feet square, as seen in the plan (Pl. 13). As the ridge itself rises to a height of fully 90 feet, a wide outlook was assured. The tower was built of sun-dried bricks measuring 14 by 7 inches and 4 inches thick. Reed layers divided every five courses. It commanded a distant view across the lake and along its southern shore, the watch-stations T. xxiii. c and T. xxiii. e to the east being clearly recognizable. The clearing of the conning room and of the refuse at the foot of the tower yielded eight Chinese inscribed slips of wood, as well as the miscellaneous relics described in the List below. Among these may be mentioned the broken piece, T. xxii. e. 011 (Pl. XLVI), of a wooden bow or cross-bow bearing on its four faces a Chinese inscription in neat but almost effaced characters, and the well-preserved broom, T. xxii. e. 013 (Pl. XLVI). On the southern slope of the ridge, about 20 feet below the tower, five narrow recesses cut into the clay had evidently served as quarters; one of them contained a fire-place and another a small niche meant for storage.

[Among the wooden documents from this watch-station, T. xxii. e. 03 is important as it contains fairly detailed instructions as regards the service of fire-signals to be maintained along the border line in case of attacks by raiders, &c. The references to this system of optical telegraphy in records previously found along the Limes had been of a more general character.[12] The slips T. xxii. e. 05, 06 are of interest as they mention the 'signal post' *Chih-chien* 止姦 of *P'o-ku* in a way which leaves little doubt about this very watch-station of T. xxii. e. being meant.]

Remains at T. xxii. f.

Less than a mile to the north-east of T. xxii. e, a belt of erosion terraces curving round from T. xxiii. a juts out into the marshy edge of the lake-bed, and reduced the expanse of this to the northward, so far as it was covered with water at the time, to only a mile or so; see Fig. 196. The clay terrace forming the extreme end of this belt commands a distant view along the whole length of the lake and bears the ruined watch-station T. xxii. f.[13] Its remains comprised a tower built of sun-dried bricks, after the manner of the two watch-towers previously described, and two rooms adjoining on the south and south-west. The plastered walls of these survived only to a foot or two above the ground (see the plan, Pl. 13). The tower, 16 feet square at the base, contained on its top, at about 8 feet from the ground, a guard-room 7 feet square. The entrance to it lay through a narrow passage at the south-east corner. From the refuse outside, two Chinese records on wood were recovered, one a tablet broken into three pieces. [This, T. xxii. f. 1, has proved to contain portions of a Chinese calendar arranged differently from those to be found in other Limes records and taken by M. Maspero to belong to the year 13 B.C.] Among some miscellaneous small objects described in the List may be noticed the fragment of an iron horse-bit, T. xxii. f. 01 (Pl. XLVII), resembling that found on the Lou-lan route, east of C. ci, and two bronze arrow-heads, of the barbed type not usual on the Tun-huang Limes but represented by finds in the Lou-lan area.[14]

Lake shore E. of T. xxii. f.

Though the terrace crowned by T. xxii. f commanded a full view of the lake shore eastwards and the scrub-covered marshy ground near it, no tower or other remains could be sighted along it

[11] Regarding the *P'ing-wang* 'barrier', see *Serindia*, ii. pp. 691, 699, 720, 746.

[12] For a synopsis of them, cf. *Serindia*, ii. pp. 752 sqq.

[13] In Map No. 38. A. 4 the tower symbol of T. xxii. f ought to have been shown farther north by the lake shore.

[14] See above, p. 274; also p. 327, for Kum. 01.

nearer than T. xxiii. b to be described presently. As the line of the wall coming from the east was traceable only up to the latter point and there abutted on the marshy foreshore, I was led to assume that for the intervening distance of fully five miles the 'wet border' presented by the lake, here at its widest, was thought to provide sufficient defence. The ground here for over a mile from the shore is a dead flat and offers no natural position for a watch-station.

Position of watch-post T. xxiii. a.

But the gap between T. xxii. f and T. xxiii. b was not left altogether unguarded; for where the eastern edge of the belt of eroded terraces stretching from T. xxii. f approaches the northern extremity of a narrow plateau jutting out from the great Sai on the south we find the two towers T. xxiii and T. xxiii. a, close together, occupying a conspicuous position at the very end of the plateau just mentioned.[15] I had already visited them in 1907, as the caravan route to Tun-huang passes immediately below them, and the results of my renewed examination will be found embodied in the account I have given of them in *Serindia*.[16] Considering that the most convenient line of communication from Tun-huang towards Yü-mên and the western end of the Limes must always have passed here, it appears to me very probable that the occupation of this point by the station T. xxiii. a and its higher look-out post T. xxiii was intended to serve the double purpose of keeping a watch on the route, and of linking up the chain of the Limes guard-towers.

Boggy ground near T. xxiii. b–g.

The group of watch-stations T. xxiii. b–g and the line of wall connecting them stretches across ground which on March 20th to 22nd was found very boggy and in places almost impassable. This condition appeared to be due in the main to percolation of moisture from a depression to the south of T. xxiii. c and T. xxiii. d. The springs gathering in this are probably fed by subterranean drainage passing below the gravel Sai from the Tang-ho or river of Tun-huang. It was interesting to note that this depression is bordered to the south and east by stretches of ground heavily salt-encrusted, where the surface reproduces, in miniature as it were, the various conditions of *shōr* encountered in, and around, the bottom of the ancient Lop sea.

Road worn into hard salt crust.

Thus, when on March 21st I transferred my camp to the spring-fed pool of Chien-ch'üan-tzŭ (known to the people from Lop as Shōr-bulak),[17] we crossed, for two or three miles before reaching it, extensive patches of very hard corrugated salt crust recalling those encountered in crossing the arm of the dried-up sea-bed north of Kum-kuduk. It was significant to observe that the road leading across them was worn quite smooth by traffic, and that its bottom lay three to four feet below the adjoining surface of hard salt. There could be no doubt that this sunk road was the result of traffic extending over long periods. The occasional passage of caravans and wood collectors' carts, such as use the road to-day, could not possibly have produced this condition. The experience gained here appeared to me a striking confirmation of what I had observed on the line of the ancient Lou-lan route where it crossed the bay of the dried-up sea-bed to the west of Camp cvi.[18]

Chinese notice of *Chien-ch'üan-tzŭ* pool.

We may, I believe, trace a notice both of the spring-fed pool of Chien-ch'üan-tzŭ and of the dried-up salt marsh to the north-west of it in the interesting topographical text of which a manuscript, recovered by me in 1907 from Ch'ien-fo-tung and marked Ch. 917, has preserved a fragment. According to the translation which Dr. L. Giles has prepared of this manuscript and very kindly

[15] Owing to a draughtsman's error which escaped my attention at the time of compiling the Map, the tower T. xxiii has been wrongly shown in No. 38. A. 4 some distance to the east of T. xxiii. a, whereas it lies quite close to the latter; cf. *Serindia*, ii. p. 721. Similarly the narrow plateau tongue ought to have been shown with its end extending northward to the position of T. xxiii. a, instead of trending to the north-north-east.

[16] Cf. *Serindia*, ii. pp. 720 sq. Some additional small finds resulting from a supplementary clearing of the refuse heaps of T. xxiii. a are described in the List below.

[17] As the water of the spring is by no means brackish, the name *Shōr-bulak* is evidently derived from the area of hard *shōr* crossed before it is reached from the west. This accounts also for the local Chinese designation 鹼泉子 Chien-ch'üan-tzŭ ('soda spring') which it reproduces.

[18] See above, p. 315.

allowed me to consult, the text was composed, A.D. 886, as an 'official memorandum' on the Tun-huang territory and the regions adjoining it to the west and north-west. It shows close agreement in many points with the *Tun-huang Lu* and is manifestly based on information collected locally.[19]

Description of *Hsing-hu* lake.

The notice, which I think must refer to Chien-ch'üan-tzŭ, runs in Dr. Giles's translation as follows: '*Hsing-hu* lake, 110 *li* NW. of the *hsien*. The other water [in the vicinity] is all brackish; this water alone is drinkable. *Hu* traders on their journey to or from the Yü-mên Barrier all stop here. The *Sha-chou chih* says: "The water is brackish; only the spring is fit for drinking." It gives its dimensions as follows: 19 *li* east and west, 9 *li* north and south, depth 5 feet.' Judging from other local references in the text it is clear that by the *hsien* or district head-quarters is here meant the walled city of T'ang times, situated about a mile to the west of the present Tun-huang-hsien. Now the distance of 110 *li* to the north-west which the text indicates from this point brings us exactly to the position of the Chien-ch'üan-tzŭ lakelet; for it is the equivalent of the 22 miles which the map marks, taking the *li* at the value of about one-fifth of a mile, which on Central-Asian ground is proved by abundant evidence to be approximately correct.[20]

Location of *Sha-chou-chih's* 'Western Salt Lake'.

This location of the 'Hsing-hu lake' is strongly supported by the statement that its water alone is drinkable in that vicinity, and by its being described as the regular halting-place of *Hu*, i.e. 'barbarian', traders on their way to or from the Yü-mên barrier; for Chien-ch'üan-tzŭ or Shôr-bulak is still invariably so used by all caravans moving to, or from, the west past the ancient 'Jade Gate'. Now, in order to understand correctly the passage quoted from the *Sha-chou chih*, a somewhat older description of the Tun-huang region,[21] we must take into account what the same manuscript Ch. 917 tells us in a preceding passage of the 'Western Salt Lake, 117 *li* north-west of the *hsien*. It is popularly known as *Sha-ch'üan* [the sand spring]. The salt is of the same kind, but it has a nice taste and is of a pink colour.' Considering that the direction named is the same as that to the Hsing-hu lake and the distance only 7 *li* farther, I think we may safely identify this 'Western Salt Lake', which obviously was sought as a place for the supply of salt,[22] with the area of dried-up salt marsh which is crossed by the caravan route from the Limes. In T'ang times it may well have been subject to seasonal inundation, just as the ground farther north towards T. XXIII. c, d is still.

Dry salt marsh N. of Chien-ch'üan-tzŭ.

It is to this area, now encrusted with hard salt, that the dimensions quoted from the *Sha-chou chih* must reasonably be held to apply. The extent of 19 *li* from east to west and 9 *li* across manifestly cannot refer to the 'spring' which alone is fit for drinking, since the pool or lakelet fed by it is quite small—scarcely thirty to forty yards across. But it agrees remarkably well with the extent of the dried-up marsh bed that is crossed by the route a couple of miles to the north-west. This identification, if correct, may claim some geographical interest; for it would furnish us with an approximate estimate of the length of time required before a salt marsh, holding water for at least a portion of the year, assumed that form of a dry bed, covered with hummocks of hard salt, which we find to-day to the north-west of Chien-ch'üan-tzŭ and which was already in existence in Han times over the greater portion of the dried-up Lop sea, as it is still to-day.

Finds at tower T. XXIII. b.

About 2½ miles to the ENE. from T. XXIII. a, the ruined watch-tower, T. XXIII. b, was traced on the top of an eroded ridge of clay about 50 feet high. The line of the Limes wall, decayed into a mere

[19] For other data drawn from this manuscript, cf. Pelliot, *J. Asiat.*, 1916, jan.–fév., pp. 116 sq.; also *Serindia*, i. p. 327.

[20] Cf. *Serindia*, ii. p. 735 and the evidence quoted there in note 28 a. It must be kept in view that the route between the two points lies in a practically straight line and, with the exception of 5 or 6 miles, passes over bare gravel desert.

[21] For its approximate dating, cf. *Serindia*, ii. p. 716.

[22] This may be concluded from the fact that our manuscript Ch. 917 mentions this 'Western Salt Lake' immediately after 'Eastern Salt Lake' where 'salt forms in natural lumps in the water; men strain away the water and dry the salt, which is all in crystalline form'.

mound, could be made out here coming from T. XXIII. c, the nearest station to the east. It passed at a distance of about 120 yards north of the ridge towards the lake shore. It could be followed up to a point about 300 yards to the north-west of T. XXIII. b, and beyond this disappeared on the scrub-covered marshy foreshore. The tower, built of sun-dried bricks of the usual size, 14 × 7 × 4 inches, measured 16 feet square at the base and still rose to a height of about 13 or 14 feet (see plan in Pl. 13). Among the objects recovered from the refuse in two small adjoining rooms were the fragments of a finely woven tapestry rug showing rainbow stripes, T. XXIII. b. 03, and a painted wooden bracket, T. XXIII. b. 06 (Pl. XLVI). This was meant for hanging up equipment, &c., and closely resembles others found at Limes stations farther west. A clipped *Wu-chu* coin and the fragment of a Chinese record on wood were also found here. [In this M. Maspero believes to find mention of a 'signal post' (*sui*) named *Lai-hsiang* 來降.]

Limes wall on ground crossed to T. XXIII. c.

Almost due east of T. XXIII. b a high conspicuous Mesa rises at a distance of about a mile and a half, commanding a very open view all round and crowned at its summit by the tower T. XXIII. c.[23] In order to reach this Mesa, the lowest portion of the depression above referred to had to be crossed. Owing to the boggy nature of the ground the passage was distinctly difficult east of T. XXIII. b. But after going for about half a mile, we picked up the line of the Limes wall marked by a low straight mound, and followed it right through to the Mesa. This rises above the surrounding salt-encrusted ground as a steep clay ridge, about 400 yards long, with an axial bearing from ENE. to WSW. Refuse of straw and dung was at once found at its southern foot, where a shelter appeared to have been devised amidst fallen masses of clay. The abundant pottery debris encountered on climbing the slope indicated that the station above had been occupied for a long period.

Ruins of watch-station T. XXIII. c.

As the sketch-plan in Pl. 13 shows, the Limes wall, built of reed fascines and layers of clay, extended up the southern slope to terrace-like ground near the middle of the Mesa at an elevation of about 90 feet. There it was carried to the west round a steep clay knoll about 30 feet higher, which bears on its top the remarkably well-preserved tower T. XXIII. c. This was built of layers of stamped clay and measured 14½ feet square at the base. It was intact to a height of about 15 feet and retained on its top a layer of reeds and a large piece of Toghrak wood. The eastern face of the tower showed foot-holes flanked on either side by smaller holes evidently intended to afford a grip to the hands of a person clambering to the top. On the northern side there adjoined a room, about 13 feet square, with walls built of brick and about 1 foot 8 inches thick. The wall facing to the north still stood to a height of 8 feet, while the one to the west was much broken and the one to the east almost effaced—significant proof of the eroding force of the prevailing east winds even at a height well above the sand and gravel scoured ground.

Limes wall at tower T. XXIII. c.

From a point opposite to the north-western corner of the tower the Limes wall, here as elsewhere 8 feet in thickness, turned off to the south-west and was carried to a small knoll, about as high as that bearing the tower, but much steeper. This precipitous knoll provided natural defence, and here the line of the wall was interrupted for a distance of about 30 feet. Beyond this gap the wall was built of bricks, measuring 14 × 7 × 4 inches, and was 3 feet thick. In this form it descended the steep slope of the knoll for a distance of 27 feet, the only instance I ever traced of the Limes wall being constructed of masonry. Beyond this stretch it was once more built of reed fascines and clay and thus continued down the slope to the south-west, here somewhat easier, for another 90 feet. It then turned off west-north-west in the direction of T. XXIII. b, being built of fascines mainly of Toghrak branches, with layers of clay between.

[23] Owing to the small scale of the map and the consequent difficulty of finding room for all details, slight inaccuracies have occurred in placing the symbols of several watch-towers in this limited area. The symbol of T. XXIII. b requires to be shifted slightly farther north and that of T. XXIII. c a little to the south-west of the positions shown.

Finds at T. XXIII. c.

Within the area enclosed by the wall on the top of the Mesa, pottery debris was abundant, clear evidence that the station had been tenanted by a considerable number of men and for a long time. From a layer of refuse between the western knoll and that occupied by the tower I extracted, lying almost on the surface, the well-preserved Chinese record on wood, T. XXIII. c. 4. Eleven more wooden slips were subsequently discovered here and among the rubbish lying close to the tower. Among the miscellaneous small objects recovered may be mentioned the fragment of a wooden bowl decorated in lacquer, T. XXIII. c. 02; the piece of an iron hoe-blade, 04 (Pl. XLVII); and two bronze arrow-heads of the 'regulation' type of Han times, 06–7 (Pl. XLVII). [Among the records recovered T. XXIII. c. 4 has proved to contain the draft of a private letter. T. XXIII. c. 016 indicates the exact place of origin in distant Ho-nan of a soldier who has died. In T. XXIII. c. 022 the local name of *P'o-hu* 破 胡 occurs again.[24] T. XXIII. c. 023 contains the fragment of a calendar from the year 4 B.C.]

Position of advanced tower T. XXIII. e.

At a distance of about a mile and a half to the north could be seen the watch-tower T. XXIII. e, situated in advance of the Limes line. The lake shore which it guarded was masked from direct observation from T. XXIII. c by a gravel-covered ridge. Owing to the boggy condition of the ground it proved impossible at the time to reach this tower. It evidently served a purpose similar to that which accounted for the placing of the advanced post T. IX. a, thrown out beyond the line of the westernmost Limes.[25] It was needed for the better protection of an important point where this section of the Limes rested its flank on the Khara-nōr and moreover, as the map shows, formed a projecting angle. The presence of this angle itself was probably due to the desire to take advantage of the very wide outlook commanded by the height of T. XXIII. c. This extended far away to the north-east, to the point where the Su-lo-ho, joined by the deltaic branches of the Tang-ho, enters the Khara-nōr. It ranged also over the bare plain to the east where the salt-encrusted depression coming from Chien-ch'üan-tzŭ is fringed by a wind-eroded area with rows of low Yārdangs.

Remains of watch-tower T. XXIII. d.

From T. XXIII. c the line of wall, now decayed into a low mound, ran to the south-east towards a far-stretching Mesa about a hundred feet high and less than a mile off. The ground, salt-encrusted throughout and boggy, could scarcely have supported us but for the firmer track offered by the mound marking the Limes line. On the top of the Mesa a completely decayed mound marked the remains of the tower T. XXIII. d. Around it pottery debris was plentiful. The specimens collected here and described in the List below comprise pieces of glazed stoneware such as those which had been found by me at T. XXIX.[26] Mr. R. L. Hobson, of the British Museum, attributes these partly to T'ang and partly to Sung times. The evidence of later occupation of the place which these pieces afford is borne out by four fragments of porcelain, T. XXIII. d. 010–13, which were also found here, three belonging to the same vessel and all roughly painted in blue.[27] What special reason accounts for this later occupation I am unable to indicate, as no route likely to have remained in continued use leads past this point.

Tower T. XXIII. f and its well.

At T. XXIII. d the line of the wall took a turn to the ENE. and at a distance of nearly a mile brought us to a narrow isolated clay ridge (see plan in Pl. 14) running east and west and about a hundred yards long. Its summit, rising about 35 feet above the adjoining ground and only 25 feet across at its widest, bore the tower T. XXIII. f (Fig. 202). This was built of lumps of clay, with layers of thin Toghrak branches inserted to reinforce the masonry. It measured 14 feet at the base and still rose to a height of about 16 feet. No other structural remains were traceable

[24] See above, pp. 345 sq.

[25] See *Serindia*, ii. p. 662; Map No. 35. D. 4.

[26] Cf. *ibid.*, ii. pp. 600 sq., 788 sq.

[27] For finds of porcelain apparently similar in type at T. XI, see *ibid.*, ii. pp. 667, 773.

on the top of the ridge, but this itself had been widened somewhat to the south by a walled-up platform built of clay lumps of large size. About 6 feet from the eastern face of the tower a circular well, 3 feet in diameter, had been cut through the clay. Its present bottom was reached at a depth of 16 feet. But no doubt the well once descended deeper to the level of subsoil water, which, as the marshy surface near by showed, could not be far from the surface.

A considerable quantity of refuse, mostly reed-straw and chips of wood, lay near the tower and on the southern slope. By clearing this a few fragmentary Chinese records on wood were recovered [one of them, T. xxiii. f. 02, mentions Tun-huang], besides a large *Wu-chu* coin and a variety of miscellaneous objects, as described in the List. Among these were the string sandals T. xxiii. f. 01, 2, both of remarkably large size and probably meant to be worn over feet protected by abundance of rags; silk rags in different colours, 010; pottery repaired by string passed through holes, 012 (Pl. XLVIII); two pieces of a wooden implement which may have served for churning, 013–14 (Pl. XLVI), &c. Finds at T. xxiii. f.

From T. xxiii. f the wall was seen to turn to the south-east and could subsequently be traced continuing in this direction for about seven miles. As far as the tower T. xxiii. g its line was clearly marked by layers of fascines stretching over the ground either continuously or in patches. That the fascines along this segment of the wall were made of Toghrak branches was a striking illustration of continuity in the surface conditions; for just between these two stations wild poplars are still growing in fair numbers in the depression crossed by the wall. Farther on the wall was again constructed of reed fascines. Limes wall traced beyond T. xxiii. f.

The station T. xxiii. g, less than a mile from the last, was marked by a tower-like structure occupying the northern end of an eroded terrace about 30 feet high. It contained a chamber of 7 feet square between thick walls built of bricks of the regular size, and now broken down to a height of about 5 feet. The entrance lay in the south-east corner, as at T. xxii. f. The Limes wall passed at a distance of about 20 feet north of the little station. Such refuse as I noticed near the entrance yielded only fragments of a string sandal and a small canvas bag. Watch-station T. xxiii. g.

A mile farther on, the line of the wall passed an isolated clay terrace about 15 feet high, which evidently had once been occupied by a watch-station. No structural remains had survived, but pottery debris of the ancient mat-marked type common at the Limes stations plainly indicated that it had been occupied contemporaneously with the latter. For a distance of about two miles beyond the line crossed depressions overgrown with reeds, and containing a few scattered Yārdang terraces and at one place some marshy springs. A young Chinese who was grazing ponies and sheep there knew these by the name of *Yeh-ya-ho*. No remains of the Limes were traced until we reached the point where these depressions gave way to a level scrub-covered steppe near the tower T. xxiii. h (Pl. 16). This had a base of 16 feet square, was built of bricks of the usual size, 14 × 7 × 4 inches, and in its broken condition attained a height of about 11 feet. The top portion enclosed a guard-room 8 feet square entered from the south. A piece of thick glazed stoneware, T. xxiii. h. 01, similar to that from T. xxiii. d, was picked up below the tower. Tower T. xxiii. h.

Within the next mile no less than three watch-towers, T. xxiii, i, j, k, stood along the line of the wall, here clearly traceable as a low but continuous mound. They were all built on the same pattern as T. xxiii. h, and like it afforded only scanty refuse. Combined with the fact that we were now approaching the area which might have been partially occupied in Han times by outlying settlements of the Tun-huang oasis, this suggested to me that these closely adjoining posts, though provided for the defence of the Limes, may not have been regularly occupied, except at times of emergency, the posting of guards being possible here at very short notice. But, of course, other explanations are also possible. In any case I regret that these last three posts were left without Line of wall near towers T. xxiii. i–k.

thorough examination, as Naik Shamsuddin's digging party which followed behind me arrived at this point too late on the evening of March 22nd. When next morning I reached the Limes line again at T. XXIII. l with my camels and baggage, the uncertainty as to where water might be found farther on for camping obliged us to move on along the line, and no time could be spared for a return to those posts.

Chinese records found at T. XXIII. l.

T. XXIII. l proved a brick-built tower of the same outer dimensions and appearance as those last described. But the guard-room, i, here 6 feet square and entered by a narrow passage from the south (see plan in Pl. 14) at a level of about five feet from the ground, was found choked with refuse to a height of over four feet. Mixed up with reed-straw, chips of wood, broken bricks and the like, there emerged here over two dozen wooden slips bearing Chinese records, most of them in fair preservation, together with a number of others which are blank and evidently had been kept ready for use as stationery. It appeared very likely that this refuse had been allowed steadily to accumulate while the small room continued to be occupied as a clerk's office; for layers of ashes as well as reddened brickwork were found at different levels where fires had been kept burning against the western wall. [Among the inscribed slips recovered here there are found fragments of private letters (T. XXIII. l. 2, 21, 23, 08) as well as the fragment of a literary work, T. XXIII. l. i. 7. T. XXIII. l. i. 3 is of interest as it appears to contain instructions as to fire-signals to be lit from a car by soldiers sent out on reconnaissance. In T. XXIII. l. i. 8, 12 the 'signal posts' of *Wei-hu* 威胡 and *Chih-k'ou* 止寇 are mentioned. The former post recurs in T. XXIII. l. i. 18, which is curious as it records the meeting on a certain day of patrols sent out from *Wei-hu* and from another post, *Hsüan-wu* 玄武, to the west of it. The tablet has been cut into two halves to serve as a tally with a number of notches marked uniformly in both. The document is described as a *ch'üan* 券, this being the proper term applied to 'an instrument in writing, originally on a tablet of wood, which was cut in two, each party having half'.][24]

Slips thrown away as 'waste papers'.

On searching the ground outside, a small refuse heap (ii) was discovered just beyond where the mound marking the Limes wall passed in a semicircle to the north of the tower. Here under only a few inches of gravel over three dozen more records on wooden slips were brought to light, unfortunately most of them completely effaced by moisture. They had evidently been thrown out together on the occasion of some clearing out of 'waste papers', like those far more numerous packets of 'slips', &c., found in 1907 at T. VI. b, T. XV. a, &c. Their decayed state seemed to indicate that we could not here hope for such favourable conditions as regards absolute dryness of air and soil as prevailed along the westernmost portion of the Limes. [Of the slips still partially decipherable T. XXIII. l. ii. 09 mentions the 'signal post' *P'o-lu* 破虜. In T. XXIII. l. ii. 020 the fire-signals of *T'ien-ho* 田和 and *I-ho* 宜禾 are referred to; the latter name occurs also in Chavannes, *Doc.* No. 637, found at T. XXVIII, a Limes station to the north of Tun-huang.] Among the miscellaneous objects extracted from the refuse surviving at this station and described in the List below, I may mention the wooden bowls, T. XXIII. l. i. 03-5 (Pl. XLVI), round or boat-shaped; the fragment of an iron weapon or implement, l. i. 06, and the wooden tally-stick l. ii. 03 (Pl. XLVII).

Decayed watch-posts T. XXIII.

The next two posts by the wall, T. XXIII. m, n, were reached at intervals in each case of three-quarters of a mile. The general direction still continued to the south-east, but the position of the individual towers, here as from T. XXIII. h onwards, diverged from the straight line. This perhaps was arranged with a view to making it easier to distinguish the fire-signals of successive stations. Both these posts were marked only by completely decayed mounds of small size, and beyond them the line of the wall ceased to be traceable on the marshy ground covered with thick reed-beds.

[24] Cf. Giles, *Chinese-English Dictionary*, p. 3159.

The next tower, T. xxiii. o, standing at the end of a low terrace, was, however, fairly well preserved, and with its brickwork still rising to a height of about 15 feet afforded guidance. On clearing the refuse near it, two inscribed Chinese tablets were recovered and some miscellaneous objects, including part of a lacquered food bowl, T. xxiii. o. 01 (Pl. XLVII). From here onwards the line of the wall could be followed again over gravelly soil eastwards as far as T. xxiii. s. Of the towers intervening at distances of three-quarters of a mile to one mile, T. xxiii. p and r could be traced only in the form of low mounds. T. xxiii. q still rose to a height of about 12 feet and T. xxiii. s of about 17 feet; their masonry of 'regulation'-sized bricks included layers of reeds, in the former tower between every two courses, in the latter between every five. At none of these posts was refuse traced on the soft soil.

Towers T. xxiii. o, p, q, r, s.

We now steered in the direction of a conspicuous tower, T. xxiii. t, visible to the east-south-east, for about a mile and a half, but found progress more and more difficult for the camels owing to spongy soil covered with soft *shōr*. When within half a mile of our objective, a sheet of water flowing from the south finally stopped us. We were obliged to turn to the south and felt glad when, after a couple of miles' very trying progress, with the camels foundering in the bog, we gained practicable ground on a low clay terrace stretching to the south. Looking eastwards from it no towers could be sighted beyond T. xxiii. t; but far away in the distance trees and farm buildings marked the northernmost outskirts of the Tun-huang oasis.

It was obviously impossible, at this season of inundation, to make our way to the east across ground reached by the spill ends of the Tun-huang canals. I therefore directed our march upon two 'Pao-t'ais' visible to the south, until nightfall obliged us to halt. When the march, resumed on the morning of March 24th, had brought us along a line of low clay ridges flanked by marshes to the larger of the two towers sighted in the evening, it proved manifestly old but quite distinct in character from the watch-posts of the Limes. This tower, T. xxiii. u (see plan in Pl. 14), which, as I subsequently learned, bears the local designation of *Yen-chi-tun*, measured 29 feet square at its base and was constructed of salt-impregnated layers of clay and gravel reinforced by thin strata of reeds at intervals of 8 inches. An oblong enclosure, much decayed, showed that the tower was meant as a place of refuge, such as are often to be found near outlying homesteads of these western marches of Kan-su, exposed as they have been to raids and disturbances during recurrent periods of history right down to the last great Tungan rebellion.[29] Large gaps in the sides of the tower proved that it could not be of modern origin. But whatever its age, it was clear that it could not be connected with the Limes line. This most probably passed from T. xxiii. t eastwards to the vicinity of the deserted town of Shih-pan-tung,[30] and thence joined on to the section of the wall which in 1907 I had traced in the north-east of the Tun-huang oasis as far as the tower T. xxx.[31]

Walled enclosure and tower of *Yen-chi-tun*.

The second and much smaller tower to the east proved obviously recent. So we moved on to the south-east, where a narrow gravel plateau now offered easy going for a time. Marshy depressions extended along it on either side, with open sheets of water fed by springs which obviously discharge subterranean drainage from the irrigated area to the west of the Tang-ho. Beyond these depressions a few scattered homesteads came into sight, apparently all deserted, sad mementoes of the destruction wrought here as elsewhere along the Kan-su border by the Tungan rebellion.

Finally, after having been brought up again and again by inundated ground and forced to make detours, we reached the wide gravel Sai and skirting it arrived at the edge of Tun-huang cultivation. After two months' continuous hard work in the desert, the familiar sight of the oasis, with

Return to Tun-huang town.

[29] Regarding the little village forts known as *p'u-tzŭ* or *pao-tzŭ*, cf. *Serindia*, ii. p. 587.

[30] See Map No. 38. b. 4; *Serindia*, ii. p. 588.

[31] See *Serindia*, ii. p. 603.

its well-tilled fields, its rows of stately elms (Fig. 206) and its sleepy villages peacefully ensconced behind high walls, was as refreshing as on former occasions. Zahīd Bēg and some other local acquaintances had ridden out to welcome me back to my old base of 1907, and the evening saw my camp established in quiet suburban quarters outside the east gate of Tun-huang town, close to the large temple where in June, 1907, my helpful Mandarin friends had bidden me their last farewell.

Section II.—TUN-HUANG AND THE 'CAVES OF THE THOUSAND BUDDHAS' REVISITED

Halt at Tun-huang town.

The rest which my men and beasts badly needed after the trying months in the desert, and—even more, perhaps—the manifold preparations which the projected explorations demanded on my part, made it necessary to halt for eight days at Tun-huang Hsien. My plans were to take me during the next few months mainly into the desert tracts which fringe on the south and east the great barren hill region of the Pei-shan 'Gobi'. The distances to be covered were great, and short was the remaining season during which work on ground which was for the most part waterless could effectively be carried out before the summer heat set in. I felt therefore doubly eager to arrange what was needed in the way of additional transport, provision of money, guides, &c., without loss of time.

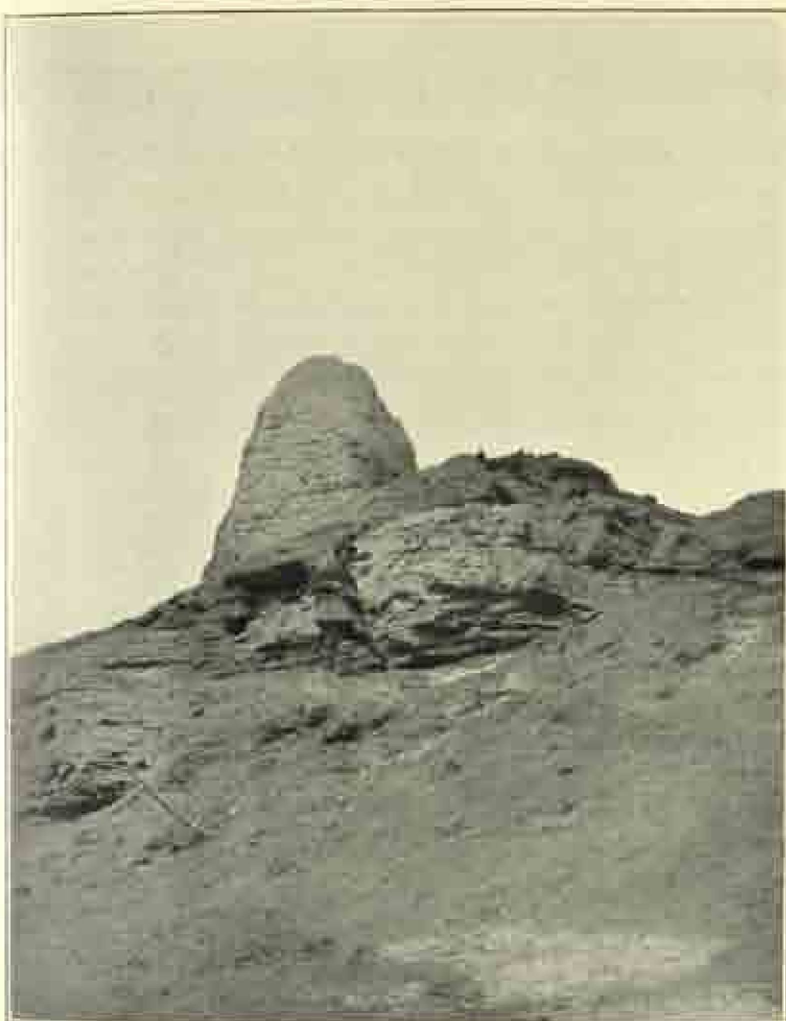
Official changes at Tun-huang.

In spite of the revolution which had since my former visit replaced the Chinese Empire by a republican régime, nothing appeared to have changed in the ways of quiet somnolent Tun-huang, that westernmost outpost of true China, such as I have described them in the Personal Narrative of my second journey.[1] Least of all could a change be expected as regards the *vis inertiae* prevailing in this scene of my former labours (Figs. 210, 211). So I soon had occasion to feel the difference resulting from the replacement of my old friend, learned Wang Ta-lao-yeh, full of scholarly interest in my work and eager to help it as far as local conditions and scanty resources would permit,[2] by an indolent opium-smoking representative of 'Young China', with no interest in the past of his country, at the Hsien-kuan's familiar Ya-mên. Pretended respect for 'Western learning' found expression only in an impossible imitation of European costume. Fortune favoured me more in the person of the military commandant of Tun-huang. My kind friend of 1907, burly, energetic Lin Ta-jên, was, alas, no longer there to extend to me his ever-willing assistance, having found the promotion he had hoped for—in heaven.[3] By a lucky chance his place had been taken by another amiable old warrior, Shuang Ta-jên, who like a true 'lord of the Gate' at Chia-yü kuan had extended to me so friendly a welcome when in 1907 I had made my first entry 'within the Great Wall'.[4] With his help I was able in the end to secure the guides and additional camels needed for the Surveyors' parties that I wished to send out on independent missions.

Monetary complications.

Being now on truly Chinese ground, I felt more than ever how little my weakly and listless *literatus*, poor Li Ssŭ-yeh, was competent to replace devoted and ever eager Chiang Ssŭ-yeh, in any but purely clerical work. In business personally to be transacted at the Ya-mêns, no less than in all practical dealings with traders, labourers, guides *et hoc genus omne*, I constantly missed my invaluable Chinese helpmate of the former journey. I had myself to attend to all the petty monetary complications involved by payments in that strangely archaic 'currency' of weighed silver,[5] and by the arrangements for the melting down into bullion of the badly debased 'Ak-tangas'

[1] Cf. *Desert Cathay*, ii. pp. 34 sqq.
[2] See *ibid.*, ii. pp. 14 sqq., 33 sq., 69, 232 sqq.
[3] Cf. *ibid.*, ii. pp. 17 sq., 69, 233 sq.
[4] See *ibid.*, ii. pp. 276 sqq.
[5] Cf. *ibid.*, ii. pp. 70, 344.

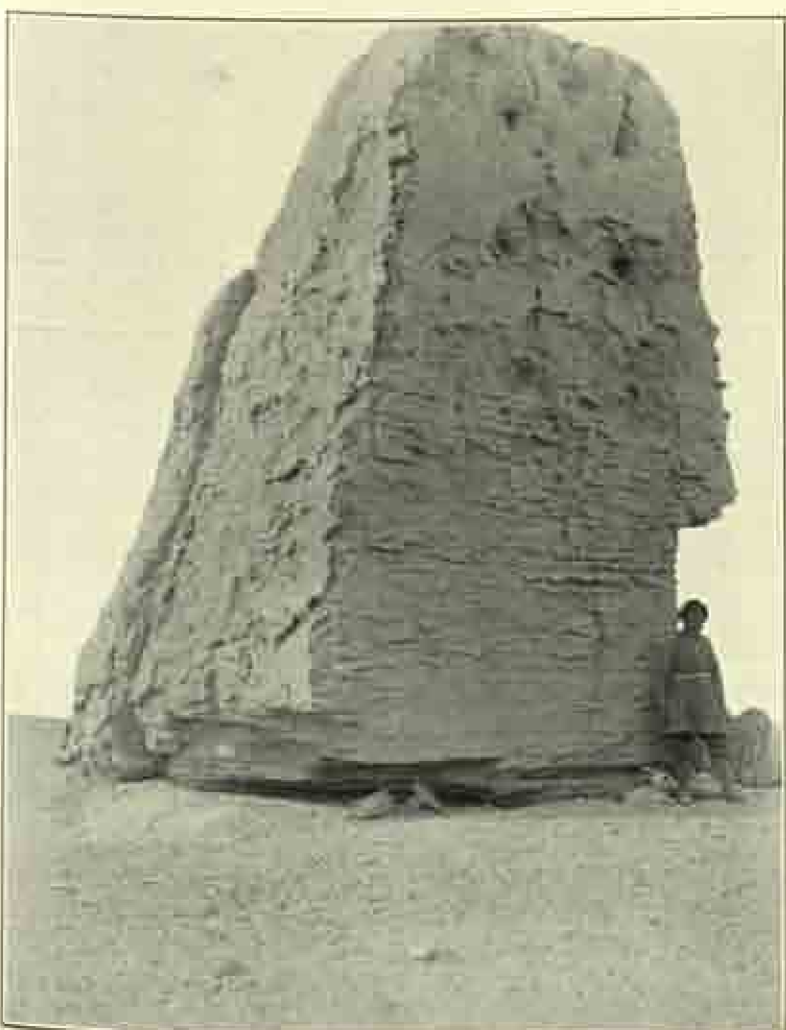


202. REFUSE-HEAP BELOW WATCH-TOWER T. XXII. f, TUN-HUANG LIMES.



203. ABDURRAHIM, HUNTER AND GUIDE, ON HIS RETURN FROM TUN-HUANG

(See pp. 209 sqq., 255.)



204. WATCH-TOWER T. VII, TUN-HUANG LIMES, SEEN FROM SOUTH-WEST.



205. WATCH-TOWER T. XL. b, ON LIMES EAST OF AN-HSI.



206. FARM NEAR WESTERN EDGE OF TUN-HUANG OASIS.



207. DUNE-COVERED FOOTHILLS SOUTH OF TUN-HUANG TOWN, SEEN FROM ROAD TO YÜEH-YA-CH'ÜAN.



208. SACRED LAKELET OF YÜEH-YA-CH'ÜAN WITH TEMPLE AND 'SOUNDING SANDS'.



209. OUTER SHRINES OF YÜEH-YA-CH'ÜAN SANCTUARY, NEAR TUN-HUANG.



210. SOUTHERN GATE OF TUN-HUANG TOWN.



211. MEMORIAL ARCH NEAR EASTERN GATE OF TUN-HUANG TOWN.

brought from the 'New Dominion'. This meant much loss of time as well as some rather severe lessons in patience.

Preparations for next winter's surveys.

It was easier to settle accounts with the owners of the hired camels from Mīrān, the use of which had helped to bring our own animals through without loss and still fit for fresh work, and with Abdurrahīm, whose magnificent camels had proved such a mainstay for our survey operations in the Lop desert. They all soon started on the return journey by the mountain route, but not before I had obtained from that hardy and ever cheery hunter (Fig. 203) whatever information he could offer about those parts of the Kuruk-tāgh to which I proposed to extend our survey work of the next winter. The preliminary guidance thus afforded and Abdurrahīm's readily promised help had a great share in subsequently assuring the safe execution of the programme that I had prepared for Lāl Singh's operations.

Contact renewed with Wang Tao-shih.

But what occupied my mind most during those days at Tun-huang was the thought of the famous cave-temples of the 'Thousand Buddhas' south-east of the oasis and of the walled-up chapel where in 1907 I had been fortunate enough to secure such abundance of ancient manuscripts and pictorial remains from a great hoard hidden away early in the eleventh century.[6] I knew well that so rich a *trouvaille* was not to be expected now. Yet I felt sincere gratification when on the very morning after our arrival at Tun-huang my earliest visitor proved to be Wang Tao-shih, the quaint little Taoist monk, whose pious zeal had brought about the first discovery of the hoard. For his discreet consideration when it came to making its treasures accessible to research, I had every reason to feel grateful. It was a comfort to feel assured by renewed personal contact that the relations of the good priest with the pious folk of Tun-huang had in no way suffered through our little transaction, though it could not have remained long secret.

Chinese MSS. from Wang Tao-shih's hoard.

I have already related in *Serindia* the fate of that portion of the hoard which Wang Tao-shih's fears and scruples would not allow in 1907 to pass, under my care, into safe keeping at a certain shrine of learning in distant *Ta-ying-kuo*.[7] When, a year after my own visit, Professor Paul Pelliot had gained access to, and searched, what remained of the hoard, with all the advantages offered by his great Sinologue knowledge, he carried off a considerable selection of its manuscript treasures via Peking. The attention of the authorities at the capital had thus been attracted to the old library, and its transfer there was decreed. Of the careless and in reality destructive fashion in which the order had been carried out, I had received an inkling already at Kāshgar and Khotan, through scattered rolls of Buddhist *chings*, manifestly derived from the Ch'ien-fo-tung hoard, which had found their way into the hands of Chinese officials and in a few instances had been presented to Sir George Macartney and others. At Tun-huang it was not long before some unknown Chinese well-wisher presented himself with a fairly large packet of manuscript rolls from the same source which he was anxious to dispose of. Judging from the very modest compensation which induced him to return later with more, I was able to conclude that the article was not altogether a rarity in the local market.

Removal of MSS. to Peking.

Wang Tao-shih, with a bitterness only too justified, explained how, on the arrival of the order transmitted from Lan-chou Fu, the collection of manuscripts from his jealously guarded cella had been carelessly bundled into six carts and carried off to the Tun-huang Hsien Ya-mên. Of the large sum which, he declared, had been assigned by the Central Government to his temple as a compensation, nothing whatever reached him, the money having been appropriated by needy hands while in transit through the different Ya-mêns. Some delay occurred before the carts were dispatched from the Tun-huang Ya-mên, and this offered a convenient opportunity for local people to help themselves gratis to 'souvenirs', before the old monastic store of texts left their

[6] See *Serindia*, ii. pp. 801 sqq.

[7] Cf. *ibid.*, ii. pp. 826 sqq.

district. The packets of Ch'ien-fo-tung rolls that I was subsequently able to rescue by purchase at Su-chou and Kan-chou clearly showed that such pilfering had continued *en route* as the carelessly guarded convoy slowly made its way to distant Peking. It was easy to form some idea of the extent of this leakage by the numerous specimens of such rolls which had been carried off into Hsin-chiang and were subsequently shown to me at different Ya-mêns along the route or were in some cases to be secured from Chinese petty employees.

Visit to 'Thousand Buddhas' invited.

There was accordingly special reason to feel satisfaction when Wang Tao-shih's cordial invitation to the 'Thousand Buddhas' was, on the occasion of a further visit, supplemented by a discreetly conveyed hint that his store of old manuscripts was, notwithstanding all that had happened, not yet altogether exhausted. I could feel sure that he would be there in person to show me what he had managed to save from well-meant but hopelessly inefficient official interference, and not merely the big new shrine, hospice, &c., which he proudly claimed to have built with the silver 'horse-shoes' received from myself.

Lakelet and sounding sands of *Yüeh-ya-ch'üan*.

In the midst of the efforts required to secure the timely completion of the preparations for my further travels, I managed to pay a renewed visit to the far-famed sanctuary of the 'Crescent Spring' *Yüeh-ya-ch'üan* 月牙泉.[8] That fine spring-fed lakelet, strangely hidden away amidst the high dunes beyond the southern edge of the oasis, is considered a wonder of nature and, together with the resounding sand-hill above it, forms a sort of 'Svayaṁbhū Tīrtha', or pilgrimage place for the people of Tun-huang. The site is duly mentioned by the Chinese envoy to Khotan who passed through Tun-huang in A.D. 938,[9] as also by Marco Polo some three hundred and fifty years later. For other notices, ancient and modern, and for parallels to the natural phenomenon of the 'sounding sands' which has made the site renowned among the Chinese, I must be content to refer to Sir Henry Yule's and Professor Cordier's notes on Marco Polo's chapter dealing with the 'Province of Tangut'[10] and to a very interesting chapter in Lord Curzon's recent work.[10a] To the Chinese notices must be added the account of the *Tun-huang Lu*, a text recovered by me from the hoard of the 'Thousand Buddhas' and translated by Dr. L. Giles, dating from the close of the T'ang period.[11]

Sand accumulations on foot-hills.

I cannot attempt to discuss here in detail the interesting physical features presented by these huge accumulations of drift-sand which cover the foot-spur of the outermost Nan-shan range where it projects towards the oasis between the mouths of the Tang-ho and the Ch'ien-fo-tung valleys. They rise to heights of several hundreds of feet, as seen in the photographs reproduced in Figs. 207, 208, 209. But I may briefly draw attention to the evident connexion between

[8] For a description of my former visit to the site, see *Desert Cathay*, ii. pp. 160 sqq. A very careful account of the physical features of the remarkable lakelet and the surrounding sand ridges is given by Professor L. de Lóczy, *Gróf Széchenyi Keletázsiai utja*, i. pp. 481 sq.

[9] Cf. Rémusat, *Ville de Khotan*, p. 77.

[10] Yule, *Marco Polo*, i. pp. 202 sq., 207.

[10a] See Curzon, *Tales of Travel*, pp. 263 sqq.

[11] See *J.R.A.S.*, 1914, pp. 710 sq.; 1915, pp. 43 sq. The description of the 'Hill of Sounding Sand' given by this account of the *mirabilia* of Tun-huang is as accurate as could be expected from a writer familiar with the locality.

The mention of the mysterious hole which the sand has not been able to cover up evidently refers to the strange hollow between the high sand ridges which the crescent-shaped lakelet occupies. The indications given as to the total area covered by the high ridges of drift-sand south of the oasis are borne out by the recorded results of our surveys.

As Map No. 38. B. 4 shows, these sand ridges, where they abut on the gravel glacis separating them from the cultivated area, extend for a distance of about 17 miles in a direct line. This corresponds very closely to the stretch of '80 *li* east and west' which the *Tun-huang Lu* mentions. Similarly the stretch of '40 *li* north and south' and the 'height of 500 feet in places' are anything but exaggerated.

I regret not to have ascertained, while at Tun-huang, the exact date when the annual *fête* at Yüeh-ya-ch'üan takes place. But my recollection is that it falls in the first week or so of June, which would correspond with the *tuan-wu* day (the Dragon festival on the fifth of the fifth moon) mentioned by the *Tun-huang Lu* as the date when it is customary 'for men and women from the city to clamber up to some of the highest points and rush down again in a body, which causes the sand to give forth a loud rumbling sound like thunder'.

their position and the direction of the winds that prevail in the lower Su-lo-ho valley. These winds, as repeatedly stated elsewhere, blow mainly from the east and north-east.[12] They are in all probability caused by the 'aspiration' which draws the colder air of the Pei-shan plateau and of the high ground joining it to the Nan-shan down into the lowest portion of the Tārīm basin, where the atmosphere is quickly heated in spring and summer.

Sand-hills west of Tun-huang.

The action of these winds upon the heavy masses of sediment which the Tang-ho or Tun-huang river and the numerous flood-beds east of it carry down from the barren northern slopes of the Nan-shan suffices to explain the heaping up of the high sands on the broad foot-hills south of the Tun-huang oasis. It is probable, however, that wind-erosion, of which my observations have so abundantly proved the existence all along the lower Su-lo-ho valley, especially below An-hsi,[13] is also constantly adding its quota of fine dust to these sand-hills. As Map No. 39. B. 1 shows, the deep-cut river of Tun-huang with its considerable and constant flow of snow and ice-fed water stops the westward progress of these accumulations of sand. But to the west of the Nan-hu oasis we again meet with a big belt of dunes swept up against the foot-hills by the same winds, and this belt extends along them right up to the point where they overlook the terminal basin of the Su-lo-ho.[14] Still farther to the west we may recognize a continuation of the same system of dune-covered foot-hills in the high sand ridges which flank the Bēsh-toghrak valley on the south and join up beyond it with the big sands of the Kum-tāgh.[15] We find an exact parallel in the Turfān depression to this accumulation of high sands over the foot-spurs of the westernmost outliers of the Nan-shan.[16] But that is on a much smaller scale and must be left for discussion elsewhere.

Departure from Tun-huang.

On April 2nd I was able to leave Tun-huang town for the 'Caves of the Thousand Buddhas', after having secured the guides and the additional camels required to enable R. B. Lāl Singh and Muḥammad Yāqūb to carry out surveys by separate routes in the mountains and along the Su-lo-ho before rejoining me at An-hsi. An icy gale from the north-east accompanied us on the march and prepared me for the desolate wintry aspect that the sacred site still presented. Ice covered the shallow channels in which the small stream loses itself over the wide gravel beds at the mouth of the desert valley, and the murky dust-laden atmosphere helped to emphasize the utter barrenness of the conglomerate cliffs and sand slopes on either side.

Arrival at Ch'ien-fo tung.

Wang Tao-shih welcomed me cheerfully and showed with genuine pride the various new structures which his pious activity had created since I had last seen the sacred spot seven years before. Opposite to the cave-temple in which the great hoard of manuscripts and paintings had come to light, there rose now a spacious guest-house and a series of shrines filled with big gaudily painted stucco images. Near by, a garden well laid out with young fruit trees, rows of stables, brick-kilns, &c., attested the little priest's single-minded ambition to restore, according to his lights, the glory and popular attractions of the ancient sacred site. He told me that the new hospice had been built mainly with the gifts of silver made by me in 1907 in return for the 'selections' I had then been able to carry away. The statement seemed to credit me with more 'merit' than was warranted by the number of silver 'horseshoes' which had then actually passed between us.[17] But it was very welcome as an indication that fresh favours were expected of me on the same business-like basis. Anyhow there could be no doubt that in the fine red book of donations, kept by Wang-Tao-shih and now eagerly produced for my inspection, the sums I had successively disbursed were all duly entered.

[12] Cf. *Serindia*, ii. p. 643; iii. pp. 1095 sqq., 1102; *Desert Cathay*, ii. pp. 140 sq.

[13] Cf. *Serindia*, iii. pp. 1095 sq., 1100 sq.; below, pp. 365, 367.

[14] See Maps Nos. 39. A. 1; 36. B–D. 1.

[15] See Maps No. 35. A, B. 4; 32. C, D. 4; 33. C, D. 1.

[16] See Maps No. 28. D. 3; 31. A. 3.

[17] See *Serindia*, ii. pp. 824 sq.

Chinese MS. rolls retained by Wang Tao-shih.

On the day following my return to the site I received welcome proof that there was good foundation for the hint given me by Wang Tao-shih at Tun-huang that his store of ancient manuscripts was not yet completely exhausted. Having spent a day revisiting most of the larger cave-temples with their wealth of fine wall-paintings and stucco sculptures, I paid my promised visit to the priest; in the rock-cut shrine which formerly served as his quarters and now had become his store-room, he now produced two big boxes crammed with well-preserved manuscript rolls. By the careful appearance of their writing and the superior quality of the paper it was easy to recognize that the specimens I was able rapidly to examine belonged to that great stock of canonical texts, mostly Buddhist and dating from T'ang times, with which Wang Tao-shih, under the influence of quasi-religious scruples, had in 1907 been least willing to part.[18]

Character of texts kept back by priest.

There could be little doubt that all these fine *chings* had passed through Professor Pelliot's hands when, a year after my own visit, he had subjected whatever was then left of the great hoard to his expert, if necessarily hurried, examination. It was practically certain that his 'selections', amounting roughly to about one-third of the manuscript bundles then examined, included all remains of non-Chinese texts that he could trace and those among the Chinese texts of which the special interest was at once apparent. I could not therefore reasonably hope for any finds of outstanding importance among the materials which Wang Tao-shih had taken care to keep back as a 'nest-egg'. All the same it appeared highly desirable to safeguard whatever Chinese manuscripts were still in the priest's precarious keeping from risks of further loss and dispersal, and to make them accessible for future critical study in the West.

Negotiations for purchase.

Negotiations for this purpose necessarily proved protracted and troublesome. The experience gained through the transactions which attended and followed my first visit had, indeed, freed the Tao-shih from those religious scruples and the more worldly apprehensions which made him on that occasion so difficult to deal with. But on the other hand his shrewd sense of business had been awakened by the payments received from subsequent visitors to a keener comprehension of the money value of what he retained. He consequently held out at first for a price per roll which, being about four times as much as that paid on the occasion of Chiang Ssŭ-yeh's big haul of October, 1907,[19] seemed distinctly too high. No doubt Wang's estimate was greatly influenced by the fact that the rolls he was now prepared to part with were almost all large ones and particularly well preserved.

Purchase of reserve store of rolls.

It would have needed Chiang Ssŭ-yeh's quick grasp and unfailingly tactful handling to bring home to the ignorant priest that these were not the criteria of the philological value of the texts. But though practical help in such matters was not to be obtained from my old secretary's inert successor, I managed in the end to arrive at a mutually satisfactory arrangement. For a total donation of five hundred Taels of silver he agreed to transfer to my possession the 570 Chinese manuscript rolls of which his reserve store was found to consist. Their total bulk is sufficiently indicated by the fact that their transport required five cases, each as large as a pony could conveniently carry.

In 1920 these rolls, together with the other manuscript materials recovered in the course of my third journey, reached a safe place of temporary deposit at the British Museum under the care of Dr. L. Giles. A first rapid inspection which this valued Sinologue collaborator was kind enough to make has confirmed my belief that most of the rolls would prove to contain texts of the Chinese Buddhist canon. But their detailed examination must wait until Dr. Giles has completed the cataloguing of the thousands of Chinese manuscripts brought away in 1907 from the same hoard, a lengthy task on which he has been engaged for a number of years. From the information kindly

[18] Cf. *Serindia*, ii. pp. 812, 823.

[19] See *ibid.*, ii. p. 825; *Desert Cathay*, ii. p. 339.

furnished by him it appears that among the newly acquired rolls there are some dating as far back as the fifth and sixth centuries A.D.[19a]

Whether the contents of the two big boxes of manuscripts which Wang Tao-shih kept in his store-room really represented the whole of the reserve he had managed to retain may well be considered doubtful. But it is certain that the visits of Professor Pelliot and Mr. Tachibana following upon mine, besides inquiries on the part of learned Chinese antiquaries, had impressed him with the spreading archaeological fame of the cave-shrines and had thus also led him to pay some attention to other 'old things' of the site. Of this I found evidence in a number of relievo plaques in stucco, manifestly old, which, as the self-appointed guardian of the site, he had removed and taken into his store-room, manifestly with a view to propitiating future visitors from a distance. When he had duly 'cashed' the donation with which I had acquired his 'nest-egg' of manuscripts, he presented to me, as a mark of his cordial feelings, the miscellaneous collection of relief plaques which are illustrated in Plate XLIX and described in the List below. No information could be obtained about their exact provenance; the priest stated that he had found them lying loose in the sand in one of the cave-shrines that he had cleared since my previous visit. But it seemed more probable that they had been removed by him from decorative stucco friezes such as I remembered seeing on the walls of one of the large caves belonging to the topmost row near the centre of the site (Fig. 226).

Relievo plaques presented by Wang Tao-shih.

One type of these plaques, represented by Ch. 015–19, 21, 29–30 (Pl. XLIX), shows the figure of a Buddha seated in meditation. It is roughly modelled and painted in the conventional style that is common to the Buddha figures in the painted diapers decorating the walls of so many of the Ch'ien-fo-tung shrines. Other types agree in showing figures seated within trefoil arches, but the plaques differ in sizes and subjects. In Ch. 025, 31–3 (Pl. XLIX) we see a Buddha or Bodhisattva seated with eyes closed and the head covered by the drawn-up robe. Ch. 023–4, 26, 28 (Pl. XLIX) show the figure of a shaven monk, seated in European fashion and holding an open manuscript roll on his knees. In Ch. 020, 22, 27 (Pl. XLIX) a fat monkish figure, with front of body exposed, sits holding a rosary in the right hand, &c. For these types and some minor variations moulds have undoubtedly been used, while the details of colouring differ. The general character of the modelling suggests an origin later than T'ang times.

Types of stucco figures.

The same may be safely assumed of the several series of small reliefs, Ch. 02–3, 04–13, 014 (Pl. XLIX), circular or pear-shaped and only about two inches wide. They are made from moulds in unfired clay and show a Buddha seated in *dhyānamudrā* with Stūpas by his side or behind. Brāhmī characters appear on all these little reliefs. In type they closely recall those found by me in numbers in one of the shrines of the 'Ten Thousand Buddhas' above An-hsi.[20] Judging from their shape they had obviously been deposited as votive offerings, just like those I had occasion to mention above in connexion with the Buddhist shrine traced on Mazār-tāgh.[21]

Small votive reliefs.

Such time as these transactions left me at the site before my return to the Limes was used for renewed visits to the most notable of its hundreds of cave-shrines. There was much satisfaction in the knowledge that Professor Pelliot during his several months' stay at Ch'ien-fo-tung had been able to do justice to the great artistic and archaeological interest of its wealth of fine wall-paintings and sculptural remains, not only by expert study on the spot but also by securing a complete series of photographs with the help of a skilful professional assistant. Assured of the approaching publication of these exhaustive materials,[22] I could restrict such cursory observations as time allowed me to make to points where the brief descriptive notes taken on my first visit of the pictorial decoration of the shrines needed supplementing.

Pictorial decoration of shrines.

[19a] For reproductions of specimens, see Pl. CXXVIII, CXXIX.

[20] Cf. *Serindia*, iii. p. 1112; iv. Pl. CXXXIX.

[21] See above, pp. 92 sqq.

[22] See now Pelliot, *Les grottes de Touen-houang*, i–vi, 1920–4.

Wang Tao-shih's 'restorations'.

As these observations have since been recorded in *Serindia*,[23] it remains for me only to add here some brief remarks on the changes which a rapid inspection enabled me to notice in the general condition of the cave-temples. Near the northern end of their main group, where Wang Tao-shih in his capacity as restorer had throughout been particularly active, there were many walls covered with fresh plaster, hiding remains of old mural paintings, as well as abundance of new and hideous statuary in stucco, to betoken the progress of his pious efforts. Less depressing evidence of his zeal was to be seen towards the middle of the same group of caves. Here much additional work had been done in clearing the approaches to the cellas of the lowest row, which had previously become partially blocked by the accumulation of drift-sand and by the gradual rise of the ground level outside. Here, too, some fifty shrines in the upper rows, which formerly could be reached only by means of rickety wooden ladders or still more rickety galleries, had been rendered easily accessible by the simple but destructive expedient of cutting passages from one cave-shrine to another right through the rock-wall separating them. Mural paintings in the way of the openings on either side had been ruthlessly destroyed in the process.[24]

Attempts to cut frescoes.

But there were signs in a few places of a danger of another kind to the pictorial relics in the caves; for attempts had been made here and there to cut out particularly striking details of fresco compositions, e. g. the fine head of one of the attendants flying by the side of Buddha's car in the noble wall-painting seen in *Serindia*, Figs. 215, 226. Fortunately these attempts, evidently prompted by some visitor's 'collecting' zeal, had had to be abandoned before they could proceed far, or induce emulation by local hands bent on obtaining antiques for sale; for the very hard and uneven surface presented by the conglomerate of the rock-wall must render it a far more difficult task to remove intact the mud plaster which here bears the tempera painting than in the case of the mural paintings found at sites of the Tārīm basin or Turfān. There the thick plaster backing of the paintings rests against the smooth uniform surface of a wall of brickwork, wattle and plaster, or natural clay, and it can with due care and some skill be separated from the wall without too great risk of serious damage. It may accordingly be hoped that the mural paintings of the 'Thousand Buddhas' will fare better than those of the cave-shrines in the Turfān and Kuchā regions, and escape exploitation by inexperienced hands, whether of amateur collectors or profit-seeking natives.

Panels from entrance to cella Ch. II. a.

Of the special difficulties presented by the conglomerate surface at the back of painted plaster I had occasion to acquire personal experience. I have already described in *Serindia* the great artistic interest presented by the beautiful mural paintings which cover the walls of the small cella, less than nine feet square, marked by me Ch. II. a and situated at the northern extremity of the main group.[25] These paintings, apparently executed in true fresco, differ strikingly both in style and technique from those noticed by me elsewhere at the 'Thousand Buddhas'. For various reasons it appeared desirable to secure specimens of the work for expert examination, and the small detached panels in the same technique decorating either side of the narrow entrance to the cella, having already suffered damage through their exposed position, offered themselves as suitable for the purpose. The experiment of their removal proved difficult. The plaster, apparently containing much lime, was thin, very hard, and firmly adhered to the gravelly surface of the rock. In spite of all our care the removal could not be carried out without numerous breaks in the panels. As, however, these left sharp edges in the plaster pieces, there is some hope left that, when reset by Mr. Andrews' skilful hands, the little panels will serve to convey some idea of the remarkable

[23] Cf. *Serindia*, ii. pp. 926 sqq.

[24] For a similar expedient adopted probably at some earlier date at the caves of the 'Ten Thousand Buddhas' (Wang-fo-hsia), cf. *ibid.*, iii. pp. 1110 sq.

[25] See *Serindia*, ii. p. 929; Figs. 203-5.

freedom of design and delicacy of outline which characterize the fine and well-preserved compositions within the cella itself.

Russian Academy's expedition to Ch'ien-fo-tung.

I cannot conclude this account of my renewed pilgrimage to this site, which had yielded so rich an antiquarian and artistic harvest, without briefly recording the satisfaction I felt, about six months later, when far away in Turfān I learned from M. Serge d'Oldenburg of his arrival at Ch'ien-fo-tung with a competent staff of artists and technical assistants. The purpose of his visit was a thorough study and reproduction of the pictorial and sculptural remains of the shrines, under the auspices of the (then Imperial) Russian Academy of Sciences. The materials collected under the direction of that distinguished scholar are certain to be of exceptional value to all students of Chinese art and Buddhist iconography. May their publication not be too long deferred.

OBJECTS PRESENTED BY WANG TAO-SHIH AS FROM SHRINES OF CH'IEN-FO-TUNG

Ch. 01, 025, 031-3. Clay relief plaques, unbaked. Seated Buddha figure, eyes closed, hands in lap covered by under robe; feet covered. Draped Āsana, pink and purple with light green border.

Figure is seated in a trefoil niche closely resembling the Kashmīr trefoil arch, but probably derived from combination of vesica and nimbus. Upper robe is drawn over head like a nun's veil, and falls in straight folds on each side of face to breast.

01. Flesh, pink slightly shaded. Neck purple; perhaps original shading darkened to this colour, as the same colour appears in hollow between nose and eye, and at dimple at corner of mouth. Upper robe, pink, edged with real gold and lined purple, covers head and is thrown over L. shoulder; under garments purple and emerald green flounce. Eyebrows, eyelashes and wavy thin moustache green-black. Background buff with traces of pale green. Well modelled, but head too large.

025. Flesh discoloured, pink and purple; moustache and beard light green; upper robe light green; under robe purple.

031. Flesh discoloured, white, pink and purple. Upper robe purple (very abraded) edged with gold, and decorated with groups of three Chinese chars. (?) in green, pink and blue placed on shoulders, elbows, knees, midway between knees (feet ?) and stomach. Āsana, green, red and dark blue. Lower R. corner broken away.

032. As 01, except lining to upper robe, green; Āsana, blue, red, green and white.

033. As 032, except lining to upper robe, blue; under robe white with green flounce. Whole of niche missing except small piece on R. and lower L. corner. 11" × 6¾" × 1". Highest relief of figure 1¼". Pl. XLIX.

Ch. 02-3. Two votive clay relief plaques; small, pear-shaped, showing Buddha seated in meditation on Padmāsana. Stūpas in background, and traces almost obliterated of Brāhmī chars. Made in mould; clay unfired. Fine modelling; fair condition. Cf. Ch. 04-014 and *Ser.* iv. Pl. CXXXIX; Wang. 005, 007. H. 2½", gr. width 2¼". Pl. XLIX.

Ch. 04-13. Ten votive clay relief plaques; like the preceding, but circular, showing Buddha seated in meditation, with Stūpas and Brāhmī chars. (?) on background.

All prob. made from same mould, except 09, which has rayed halo border and other differences in details. Clay unfired. Diam. 1¾" to 1⅞". Pl. XLIX.

Ch. 014. Votive clay relief plaque; small, pear-shaped, showing seated Buddha in high relief in middle, surface much worn. Remainder in very low relief consists only of rayed trefoil halo and vesica, two small Stūpas by each side of Padmāsana; scattered Brāhmī chars. (?) above, and 2 ll. close Brāhmī chars. below Padmāsana. Mould pear-shaped, but edges of plaque untrimmed. 1¾" × 1¾". Pl. XLIX.

Ch. 015, 016, 017. Clay relief plaques. Roughly modelled. Buddha seated in meditation on Padmāsana. Robe red; hair blue. Eyes and eyebrows painted black. Nimbus pointed, green; halo blue. Traces of gold on face of 017. All rather defaced. 7" × 4⅛". Pl. XLIX.

Ch. 018, 019, 021, 029, 030. Clay relief plaques. Buddha seated in meditation on Padmāsana. Head in high relief, body in low relief. All varying slightly in modelling and colour. Vesica and oval nimbus. Poor work. 9" × 6½". Pl. XLIX.

Ch. 020, 022, 027. Clay relief plaques, similar to Ch. 01. But seated monkish figure is corpulent; front of body exposed to stomach; two upper robes, one covering lower part of body, legs and L. arm and shoulder, the other covering R. arm and shoulder. Flounce of under robe. L. leg crossed; R. foot flat on Āsana with knee up on which rests R. hand holding rosary; L. hand on L. knee; eyes open and round; shaven head, uncovered; cheeks and chin coloured dark to show incipient hair. Prob. monk.

020. Flesh dark pink, eyebrows bushy painted in fine lines. Upper robes purple, red bordered; that on R. lined green. Flounce, green. Āsana, green, black and red. All niche missing. *022*. Flesh and hair as preceding. L. upper robe green studded with trefoil spots, each composed of three round dots, respectively blue, green and pink with

dark centre dot; border, red, lined purple. R. robe, purple, bordered gold, lined white (?); flounce purple (?). Asana, green, blue, red. L. lower corner missing.
027. Flesh and hair as preceding, eyes wider open. R. upper robe green, bordered red, lined purple. L. robe, pink, bordered green, lined white. Āsana, green and red with rosettes of seven purple dots. Flounce purple. Upper and lower L. corners missing.

All from same mould. Size complete 11" × 6¾" × 1". Pl. XLIX.

Ch. 023, 024, 026, 028. Clay relief plaques; monk seated in European fashion in niche as Ch. 01, with both feet flat on mat. Shaven but region of hair black. Eyes open, dreamy and slanting. Mouth open in painful smile, showing white teeth.

Under robe covers breast, loosely open at neck, crosses over body from L. to R. and hangs in heavy folds over R. arm. Upper robe covers L. shoulder and arm, is drawn loosely across to R. hip, covering lower part of body and legs to ankles. Small portion drawn over R. shoulder from back. Flounce of under robe hangs below, caught up over feet. Knees and feet wide apart, and partly opened scroll on knees by hands which grasped rolled portions R. and L.
023. Flesh pink; hair, eyebrows, upper eyelashes and pupils of eyes, black. Under robe purple with white overlap at neck, green border; red waist-band; purple flounce; green lining. Upper robe, pink, bordered white. Shoes black, mat pink, scroll white.

024. Flesh green-grey with purple neck and patches, hair, &c., as preceding. Under robe, purple to red; girdle, thence downward, green. White overlap at neck. Upper robe, pink, bordered dark green (?). Shoes, mat and scroll as preceding, but scroll has eight lines of finely written Chinese characters. Niche complete.

026. Flesh, pink; hair, &c., as preceding; under robe as 023. Upper robe, dark purple, bordered red. Shoes black; mat buff. Niche missing at lower L. side.

028. As preceding, excepting under robe bordered dark green; girdle light green. Upper robe, light green with spot pattern composed of three straggling patches of colour, red, blue and green, suggestive of the Chinese characters on robe of Ch. 031; border, red. Niche complete. 10¾" × 6¾". Pl. XLIX.

Ch. 034. Clay relief plaque. Figure of same type as Ch. 023, &c., but pose of 'royal ease'. Rosary clasped against centre of body. Scroll completely rolled up, in L. hand on knee.

L. foot on mat which appears as four vandykes, each composed of three or four overlapping layers in purple, red, green, and blue. Under robe purple-brown, bordered red. Upper robe light green, bordered red; no portion on R. shoulder. Niche complete. 10¾" × 6¾". Pl. XLIX.

Section III.—BY THE HAN LIMES TO AN-HSI

Departure from Ch'ien-fo-tung.

On April 8th I left the sacred caves after a very cordial parting with their priestly guardian. I had, four days before this, started R. B. Lāl Singh south-westwards up the slope of the high range with instructions to reach, if possible, the defile through which the river of Tun-huang debouches on to the huge gravel glacis of the Nan-shan. Thence he was to carry his survey across its outlying hill chains to the T'a-shih river (Map No. 38. D. 4) and then to rejoin me at An-hsi. I had arranged to send all spare baggage by hired transport from Tun-huang to that place along the main road, already surveyed in 1907, and myself to strike across the desert to the north-east.

Purpose of surveys east of Tun-huang.

My object was to reach the line of the ancient Limes near a point east of the ruined watch-station T. XXXV, up to which in March, 1907, we had been able to trace the border wall of Han times,[1] and then to follow its remains through to An-hsi. This little town, the southern bridge-head as it were of the Chinese 'high road' to the 'New Dominion', was to serve also as a rendezvous for Muḥammad Yāqūb, whom I had sent from Tun-huang to carry a survey down the Tang-ho to its junction with the Su-lo-ho and then along the right bank of the latter to An-hsi. The ground over which my own proposed route would take us, between the course of the Su-lo-ho on the north and the Tun-huang–An-hsi road on the south, had so far remained wholly unsurveyed, and the inquiries made during our stay at Tun-huang had failed to elicit any information whatever about it.

Boggy ground N. of road to An-hsi.

On the day of our start we made our way from the mouth of the Ch'ien-fo-tung valley, across a barren alluvial fan of gravel, to where subterranean drainage breaks out in marshy springs near the lonely roadside station of Ko-ta-ch'üan-tzŭ.[1a] Next morning, after filling our two water-tanks, we set out to the north-east with a view to eventually striking the line of the Limes in the vicinity of the dune-covered area where seven years before we had lost its traces. Progress, first over

[1] See *Serindia*, ii. pp. 605 sq.

[1a] See Map No. 38. C. 4.

a gently sloping gravel Sai and then between tamarisk-cones and reed-beds, was easy for about seven miles. Then the patches of salt-encrusted ground that we encountered became wider and wider, and soon afterwards the boggy soil proved quite impracticable for the camels, which lagged far behind us who were mounted.

It therefore became necessary to skirt this treacherous ground by steering a more easterly course. After another three miles or so we had to cross a succession of shallow salt-encrusted channels coming from the south-east; these evidently represented the delta of the dry flood-bed which our former survey had shown near the abandoned roadside tower and station of K'ung-hsin-tung (Map No. 38. c. 4). Thinking that we had now passed the belt of this drainage and encouraged by the sight of dunes in the distance to the north-east, I decided to resume the march in our original direction. But we were soon faced by fresh difficulties. The expanse of soft dark-coloured *shōr* we had at first to cross was bad enough for the camels. It felt springy underfoot and hid real bog, as the water oozing out in the track showed only too plainly. But again and again we came upon belts covered with a yellowish salt crust which neither ponies nor men could enter without risk of being embogged and which were quite impassable for camels. Great detours had to be made to avoid these treacherous yellow streaks. Even so, camels repeatedly foundered, and we had to extricate them by removing their loads and spreading felts for them to regain a safe footing. Difficulties of crossing.

When we had thus struggled along for another three miles, a continuous ridge of high sands, crescent-shaped, rose at last within near view. It appeared to be scarcely more than a mile and a half distant in a straight line, but the ground still separating us from it proved the worst we had yet encountered and threatened to detain us till nightfall. Only by keeping carefully to winding lanes of dark *shōr*, often only a couple of feet wide, or by dodging the oozy yellow swamp, wherever it was edged by cakes of hard salt, was it possible to draw nearer and nearer to the edge of the dunes and the promise of safety. Hassan Ākhūn, my tried old camel factotum, managed, with admirable skill and resource, to bring the animals in his charge along the tortuous track that we reconnoitred ahead. But even that hardy veteran confessed afterwards that he would not care thus to tempt fortune a second time. Darkness was coming on when at last a rapid move across a quivering stretch of moist sand brought us to a safe place for the night's camp. Passage across salt-encrusted bog.

I have described the experiences of this day's march in some detail because the ground crossed presents some geographical interest. It appears to me quite clear that this salt-bog area, extending probably for some considerable distance to the north-west,[2] owes its existence to subterranean drainage from the outermost foot-hills of the Nan-shan range to the south. The flood-beds descending from them towards the trough of the Su-lo-ho were all dry when we passed them between Tun-huang and An-hsi in June, 1907. But as was shown by the observations made by me some weeks later that year in the broad transverse valley of T'a-shih and Ch'iao-tzŭ,[3] there can be little doubt that a good deal of subterranean drainage from the high range in the south finds its way to the foot of the outer hill chain. Subsoil drainage from Nan-shan foot-hills.

This moisture, where it reaches the surface along the southern edge of the Su-lo-ho depression, is probably in the main evaporated by the heat of the summer months. A belt of gravel-covered higher ground extends parallel to the Su-lo-ho between An-hsi and the north-eastern end of the alluvial fan of Tun-huang, and this belt, along which the Limes line between the two Moisture accumulating during winter.

[2] The entry 'Bare gravel Sai' in Map No. 38. c. 4 to the north-west of the boggy area described ought to be deleted. It has been wrongly taken over from *Serindia*, Map No. 81. A. 3, where it refers to the ground immediately to the north of Ko-ta-ch'üan-tzŭ (erroneously spelt there as Lo-ta-ching).

[3] Cf. *Serindia*, iii. pp. 1099 sq., 1108.

oases for the most part runs,[4] seems to cut off the flow of that drainage towards the river. Thus salt-incrustation necessarily proceeds on the surface, while the marshes undergo their seasonal drying up. During the severe cold of the winter, which prevails on this ground for fully four months, the moisture accumulating in the soil of the boggy area becomes frozen to a considerable depth. With the advent of spring this frozen soil begins to melt, and then the surface, which probably in the autumn and winter presents the appearance of a dry salt-encrusted depression, reverts to the condition of an almost impassable bog such as confronted us on the march above described.

Parallel to drying up of Lop sea-bed.

The process observable here on a small scale provides some instructive indications with regard to the phases through which the vastly larger salt marshes that once covered the bottom of the ancient Lop sea-bed may be assumed to have passed, before they reached their completely dried-up present state. The parallel thus provided claims special interest, because we find it in a region which is adjacent to, and in climatic respects a counterpart of, the Lop basin. On the other hand, we have abundant evidence in the archaeological observations made along the Tun-huang Limes that the present climatic conditions on this ground are not materially different from those which prevailed there two thousand years ago. If we may judge from the chronological indication thus afforded, the final drying up of the salt marshes in the Lop desert area must be assumed to reach back to a much earlier period.

March continued northward.

On April 10th followed another long march, not free from anxiety. Regard for the ponies made it imperative to reach water, even though our tanks, still half full, contained sufficient provision for us men, including a small party of diggers brought from Tun-huang. For the first three miles or so from Camp cxxiii progress in the intended direction was easy, for we were able to circumvent such patches of soft *shōr* as were encountered by keeping to the encircling belt of low dunes. But after this a succession of winding marshy depressions—the first holding salt pools, the second with open salt water flowing westwards—barred the progress of the camels and obliged us to make detours to the east. The fact that the second depression was lined by tamarisk-cones on the south and in places also by rows of Toghraks suggested that it marked an old river-bed. This may possibly be connected with the depression to be noticed farther north or else with the big flood-bed feeding the marshes of Lu-ts'ao-kou (Map No. 38. D. 4).

At last, after a march of about eight and a half miles from camp, we managed to cross the depression where it held a number of small dry salt-encrusted channels. Thereafter it became possible to steer a straight course to the north without hindrance. Luxuriant reed-beds, with low dunes and tamarisk-cones in places, covered the ground, which was slightly salt-encrusted. We had covered about fourteen miles when, in view of open belts of Sai separated by lines of dunes 10 to 12 feet high, our route crossed a well-marked ancient river-bed, about 50 yards wide, lined by rows of living Toghraks on either side.[5]

Line of Han Limes reached.

The appearance of the bare pebble-strewn plain ahead, as viewed from the last low ridge of sand two miles farther on, distinctly reminded me of the Sai as observed in 1907 along the line of the Limes stations T. XXXI–V, and the plane-table showed that our position could not be far from the eastward continuation of the Limes. But during a long wait for the camels at this fixing, I vainly searched the horizon with my glasses in the hope of discovering ruined towers to mark its exact line. Yet the area of high sands in which we had lost the Limes wall seven years before was clearly in view due westwards. All doubt, however, disappeared when having moved only half a mile farther northward we came upon a low but unmistakable swelling of the ground, running

[4] See *Serindia*, ii. pp. 603 sq.

[5] This old bed with its characteristic rows of wild poplars ought to have been marked on Map No. 38. C. 4 about a mile south of the limit of vegetation there indicated.

perfectly straight across the gravel-covered flat and rising from three to four feet above it.[6] It exactly resembled the remains of the Limes wall where traced in its completely decayed state to the east of T. xxvi.[7] In the light of the setting sun, I thought I could also recognize the slight depression left in the gravel by an ancient track keeping parallel to the wall line and at a distance of about nine yards south of it. I had previously noticed a similar depression along more than one stretch of the Limes west of Tun-huang.[8]

Approach to Su-lo-ho bed.

The necessity of reaching water before nightfall prevented any search along the line of the wall and obliged us to hurry on towards the Su-lo-ho across the bare Sai. At a distance of about a mile and a half we came upon a clearly marked dry river-bed, about 20 yards wide and lined with Toghraks, most of them alive. Its appearance and direction left no doubt that it was the same that I remembered having crossed when making my way seven years before to the Su-lo-ho from the easternmost portion then traced of the Tun-huang Limes.[9] Beyond it came a narrow strip of ground where the exposed clay was cut up into regular small Yārdangs, 4 to 5 feet in height; and after this again, level gravel-covered Sai, with only scattered tufts of thorny scrub and here and there a few old Toghraks surviving. There was nothing to assure us that we were approaching the eagerly expected river, until we almost stumbled upon its deeply sunk bed, fringed by a narrow belt of reeds and young Toghraks.

Search for Limes wall SSW.

The place we had reached for the night's camp showed signs of having been frequented from time to time by men grazing camels or collecting fuel. A rough cart-track was found in the morning leading from it in the direction of An-hsi. This we followed for close on eight miles eastward to where a large refuse mound, rising to a height of about 8 feet, indicated the former existence of some regular halting-place. Experimental digging disclosed only layers of stable refuse and left it doubtful how long it had been abandoned. From this point the baggage was sent on ahead, with instructions to camp by the river, while Afrāz-gul and I, with a few men, set out to the south-south-west to search for the line of the Limes. At a distance of two miles from where we had left the cart-track, we again crossed the winding river-bed previously mentioned. Its general course lay here from the south-east, and this direction was confirmed by subsequent observations, as Map No. 38. D. 4 shows. I am thus led to conclude that this dry bed probably represents the continuation of the course followed by the T'a-shih river where it turns sharply to the north to lose itself on the flat of the Su-lo-ho valley.

Belt of Yārdangs.

On both sides of this old flood-bed the alluvium once deposited by it was furrowed by wind-erosion into Yārdangs. Here they were only 2 to 3 feet high; but at points farther to the east, where we subsequently had occasion to cross this eroded belt along the dry river-bed, the Yārdangs rose higher—up to 8 to 10 feet. As we continued our march to the south, the bare Sai of gravel crossed on the previous evening stretched again before us. But in spite of remarkably clear atmospheric conditions, which allowed us to sight the successive ranges of the Nan-shan right away to the snowy chain south of Shih-pao-ch'êng (Map No. 39. D. 1; 41. A, B. 1), no ruined towers of the Limes could be seen. Nor did we, owing to the sun being high and in our face, notice the straight line marking its *agger* until we were quite close upon it.

Gravel mound marking Limes wall.

We there found that the low gravel mound into which it had decayed ran straight like a railway alignment, with the approximate bearing from east to west. Where we first struck it, the mound rose to a height of only 4 feet above the level of the bare gravel, but showed a width of about 32 feet at its foot. No remains of fascines or other reinforcing material were traceable on the surface.

[6] In Map No. 38. C. 4 the symbols marking the decayed Limes wall have been drawn slightly too far south.

[7] Cf. *Serindia*, ii. pp. 592, 604.

[8] See *ibid.*, ii. pp. 656, 682, 692 sq.

[9] See *ibid.*, ii. p. 606.

But when I had a cutting made through the *agger* the soft reddish soil, quite different from the yellow clay of the natural ground, plainly suggested the presence of rotten or possibly burnt vegetable matter. It was obvious that the construction of the border wall was here different from, and inferior to, that observed along the Limes line farther west.

Limes *agger* at T. XXXVII.a.

A little to the east of where we had struck the line, a small semicircular northward bend of it marked the position of a watch-tower, T. XXXVII. a. It had decayed into a little mound of earth about 6 feet high and covered with salt-efflorescence. A hasty search disclosed no ancient refuse near it. But examination of the *agger* near by furnished interesting confirmation of a surface feature which I had observed on previous occasions, but not quite so clearly. Low scrub was found growing with comparative abundance on the slopes of the mound, whereas its top was left quite bare. Accordingly, standing on the mound itself, I could make out its direction with ease for a considerable distance by the double and parallel line of vegetation thus produced. Exactly corresponding lines of vegetation had been noticed by me, and Afrāz-gul also, at two different points of the Bēsh-toghrak valley.[10] There the lines had suggested to me the embankments, perhaps, of an ancient canal, and their reappearance here, under conditions excluding all possibility of optical illusion, helped to strengthen my previous conclusion.

Construction of *agger*.

No signs of ruined watch-stations could be discovered along the line stretching westwards. I therefore decided to move in the opposite direction, where the line of the *agger* could be seen to rise gradually. Half a mile farther on it attained a height of about nine feet and disclosed on its surface characteristic layers of brushwood. These were about 3 inches thick and alternated with strata of earth, about 7 inches in thickness. The fact that the reinforcing material consisted not of tightly bound fascines, such as was used for the Limes wall west and north of Tun-huang, but only of thin brushwood loosely laid, was a clear proof of inferior construction and also accounted for the greater width which, it was evident, had originally been given to the *agger*. The *shōr* which might have served as a useful binding material appeared to be absent from both the soil and the brushwood that had here been locally collected for the *agger*; and this may have accelerated the decay. At one point of this section I found the *agger* still rising to a height of 12 feet, with five alternate layers of brushwood and earth still clearly distinguishable near the top. The brushwood must have been exposed already in ancient times, for over a distance of about 120 yards I found the edges of its layers charred. As this burning was to be seen in at least three other places, it may be assumed with some probability to mark an attempt to destroy the Limes by fire.

Remains of watch-towers T. XXXVII. b, c.

At the distance of about a mile from T. XXXVII. a, a large refuse heap (marked *b*) was found near the southern foot of the *agger* and may indicate the position of a completely decayed post. From the masses of reed-straw, dung, &c., a badly perished wooden slip was extracted of the size usually adopted for ancient Chinese records; also the pointed wooden stick, T. XXXVII. b. 01, of uncertain use. Half a mile or less farther on there rose by the *agger* the ruin of a watch-tower built in stamped clay, T. XXXVII. c.[11] Most of the northern and eastern faces had fallen, but on the west the original measurement of the square base, 20 feet, could still be ascertained. The extant height was about 14 feet. An extensive refuse heap to the south-east, covering about 30 by 22 yards, could not be thoroughly cleared by the few men who accompanied me. So far as examined, it yielded, apart from stable refuse and chips of wood, only abundance of hard potsherds, mostly mat-marked; specimens of these are noted in the List below.[11a]

The line of the *agger* eastward still rose to a height of 6 to 8 feet and comprised layers of brushwood which in places showed marks of having been fired. We followed it for two miles

[10] Cf. above, p. 323.

[11] In Map No. 38. D. 4 the symbol of this tower has been shown too far to the east.

[11a] See Chap. XII. sec. iii.

before reaching the next traceable remains of a watch-tower, T. xxxvii. d. This had decayed into a small shapeless clay mound; but the semicircle which the wall made round it, with a diameter of 50 yards, rendered its position quite certain. Line of Limes *agger* traced to T. xxxvii. e.

From here onwards we found rows of low Yārdangs approaching close to the line followed by the Limes. Their axis lay almost due east and west, whereas the Limes *agger* followed an alignment of S. 97° E. It was here reduced once more to the condition of a low gravel-covered mound. In this form we managed to trace it to another completely decayed tower, T. xxxvii. e, and thence for about three-quarters of a mile farther, until we lost it in a belt of closely packed Yārdangs flanking the old river-bed previously mentioned. At this point the late hour and our distance from the river where we should have to look for the night's camp obliged us to suspend our search. But the sight of a ruined tower to the north-east showed us where to resume it next morning.

From Camp cxxv, which we were lucky to be able to locate and reach after nightfall, as it was pitched low down by the river, I started back on April 12th, Easter Sunday, to the Limes line. While moving with the baggage towards the previously noted cart-track which it was to follow to the western edge of the An-hsi oasis, we came unexpectedly, after proceeding a mile or so amidst luxuriant scrub, upon a small area of abandoned cultivation. The canal that once carried water to it from the east was still clearly traceable, and as no wind-erosion had as yet set in on the fields, the date of abandonment could not be remote. Patch of abandoned cultivation.

The tower, T. xxxvii. f, sighted on the preceding evening, was at once shown to be old by the abundance of pottery debris of Han type found lying about its foot. It still rose to a height of some 18 feet and measured about as much on each side of its square base. Its construction was unusual; for fissures in the mass of stamped clay showed that this formed only a kind of outer casing for a core of natural clay. An isolated erosion terrace, about 10 feet in diameter and of irregular shape, had apparently been utilized for building this watch-post. In order to secure cohesion, wooden beams had been fixed into square holes cut into the natural clay, and then the stamped clay had been built up around the beams. The latter, as well as smaller pieces used for this wooden reinforcement, still survived. But their very rotten condition was plain indication of climatic conditions less arid than those to which the Limes remains west of Tun-huang bore witness. On clearing the top of the tower the natural clay emerged and showed by its red colour that signal-fires had been kept burning there. The only refuse traced near T. xxxvii. f consisted of a heap of brushwood, mainly small twigs, such as occurs in the *agger* of this section of the Limes, and some animal bones. Ruined Limes tower T. xxxvii. f.

At first the position of this tower appeared distinctly puzzling. To the south-west of it no clear alignment could be made out connecting it with the *agger* traced to T. xxxvii. e. The ground was broken up by closely packed Yārdangs, though gravel mounds of short length seemed to crop up here and there. To the north of the tower, however, I noticed that a broad dike-like bank of gravel, about 70 feet across at its foot and for the most part 15 to 16 feet high, started at a distance of about 50 yards and extended in a slightly curving line eastwards for about a mile. It looked very different from any part of the Limes wall I had traced so far, but somewhat resembled the broad gravel embankment which in 1907 I found running across the bare Sai from Nan-hu to the Tun-huang river.[12] Puzzling position of tower.

Feeling uncertain about the relation between this strange-looking gravel dike and the tower T. xxxvii. f, I at first considered it possible that the latter might have been intended merely as an advanced post for observing the ground otherwise screened by the dike, perhaps of earlier origin,

[12] See *Serindia*, ii. pp. 610, 617 sqq.

and that the Limes extended along a line farther south. So I proceeded for about two miles to the south-south-east in the direction of a slight eminence which looked as if it might mark a ruined post. But when we reached it after crossing ground badly cut up by wind-erosion, it proved to be a dead tamarisk-cone, close to the dry river-bed. Of the Limes line no trace could be seen anywhere in this neighbourhood.[18]

Double *agger* near T. XXXVII. h.

Convinced by this reconnaissance that the border line must have had its continuation farther north, I returned in that direction and at a point about a mile and a half to the east-south-east of T. XXXVII. f came upon the Limes *agger*, constructed of layers of brushwood and earth exactly as between T. XXXVII. a–e. But strangely enough there were two lines of it, separated by about 90 yards of wind-eroded ground and here nearly parallel to each other. Half a mile to the south-east the two lines united at T. XXXVII. h, a tower completely decayed into a shapeless mound, but clearly marked as a watch-post by the semicircle which the *agger* formed round it, and by abundant pottery debris. Further examination showed that the more southerly of the two lines of *agger* could be clearly traced to a point about half a mile east of T. XXXVII. f, where it struck the big gravel dike at a blunt angle. The northern one joined on to the dike where it ended about a mile to the east-south-east of this point and thus linked the dike to the *agger* at T. XXXVII. h.

Change in alignment suggested.

In the absence of definite archaeological evidence, we must resort to conjecture to account for the strange duplication of this short section of the Limes line. After close consideration of the ground the following explanation commended itself to me. It seems likely that the dike, whatever its origin was, already existed before Wu-ti's Limes was pushed forward to Tun-huang and beyond. At first the new line, as marked by the southern *agger*, was made to join this dike near T. XXXVII. f, which, by reason of its natural clay terrace, offered a convenient position for a watch-station. Some time later it was noticed by those responsible for guarding this portion of the Limes that the eastern segment of the dike, not having been utilized in the alignment of the border wall, effectively masked the ground in front of the newly built *agger* and thus made the guarding of the latter more difficult. In order to rectify the mistake made in the first alignment, this eastern segment of the dike, which before had been left, as it were, hanging in the air, was accordingly joined up with the Limes line at T. XXXVII. h. The line between this post and T. XXXVII. f was thereby pushed a little farther north than before.

Inferior construction of Limes W. of An-hsi.

Whether the explanation here offered or another is the right one, it seems difficult not to recognize in this duplication of the *agger* one more sign of the hasty and careless construction which appears to have prevailed along the Limes on either side of An-hsi. This inferior construction manifests itself very strikingly in the substitution of a mere *agger* of earth and loosely laid brushwood for the solid wall carefully built with regular fascines which we found all along the Tun-huang Limes as far east as T. XXXV. To the same cause, even more perhaps than to less arid conditions of climate, may be attributed the complete decay of almost all the watch-towers between An-hsi and the Limes section explored in 1907 to the north-east of Tun-huang. In the absence of documentary evidence, it would serve no useful purpose, after the lapse of two thousand years, to conjecture the reason of this inferiority of construction. Circumstances of a purely accidental character may have had as much to do with it as considerations of a topographical or quasi-strategic nature.

[18] The small enclosure, seen to the south and marked with g on the map, had the appearance, when seen through the binocular, of a ruined village fort or *p'ao-tzŭ*, such as I had noticed at several points beyond the present cultivated area of An-hsi, when approaching the oasis in 1907 from the south-west; see Map No. 38. D. 4 near Kua-chou-k'ou; also *Desert Cathay*, ii. p. 235. I could not spare time for a visit to what obviously was a ruin of late date.

From T. XXXVII. h the *agger* could be followed quite clearly for a mile and a half to T. XXXVII. i, the layers of brushwood showing in places an admixture of reeds. The tower at this point was found reduced to a mere mound of clay. But about 30 yards to the west of it and within the wall line there survived the remains of a small cella in a somewhat better condition. It measured 6 feet 3 inches square and showed wall foundations of solid masonry to a height of about 2 to 3 feet. The bricks measured 9 inches by 6, with a thickness of 4 inches, the lowest courses being laid in a cutting in the natural clay. Cella traced at T. XXXVII. i.

That these remains belonged to a small shrine became perfectly certain when I found the ruin of a little modern place of worship just outside the *agger*, where a well-marked track coming from the east crossed its line. It still retained three plastered image bases, and its masonry consisted of sun-dried bricks placed vertically, as is customary nowadays along these marches of Kan-su. The presence of this modern shrine was a striking instance of the tenacity of local worship. Repeated observations during my explorations of 1907 had shown that this clings particularly to all points where routes cross the Limes, from the region which used to lie within its protection, to territory 'outside the barrier' (*kuan wai-t'ou*), according to the Chinese expression. Modern shrine at crossing of Limes.

I have already fully discussed in *Serindia* the reasons for the persistence of local worship at such points, and commented on the characteristic instances presented at the site of the ancient frontier 'gate' of *Yü-mên*, at the passage of the present high road through the Limes line south of An-hsi, &c.[14] It will therefore suffice here to mention that, as will appear from subsequent chapters, my renewed explorations have shown that almost every point where a recognized route passes outside the ancient border line of Han times is marked either by a shrine still 'in being' or else by one where worship has lingered until comparatively recent times.[15] As regards the ruined cella close to T. XXXVII. i, I may add that the size of its bricks approximates to that of the bricks used in the ruined temple which I unearthed in 1907 at the Limes post T. XXIX, and which, on the strength of the sculptural remains there discovered, may be assigned to a period not later than T'ang times.[16] Evidence of continued local worship.

At T. XXXVII. i the line of the *agger* took a sharp turn to the north-east. At first almost effaced, then reappearing quite clearly on ground where vegetation became more plentiful, it brought us after we had proceeded a little over a mile to the point which a mound of clay and abundance of ancient potsherds indicated as the position of a completely decayed tower. From here the line could be traced continuing with the same bearing towards another entirely ruined tower, T. XXXVII. k, a mile and a quarter distant. Owing to the presence of increased moisture, which reaches this ground from the western edge of An-hsi cultivation, much scrub and also small tamarisk-cones were to be found here on either side of the *agger*. Yet in places it still rose to a height of 6 to 8 feet. Line traced to tower T. XXXVII. k.

From T. XXXVII. k the *agger* turned due east in the direction of a large conspicuous tower. This, when reached at a distance of a mile, was found to be new in appearance, but might well have been built round an old one serving as its core. The *agger*, as far as it was traceable to the east of *k*, showed a peculiar construction. It seemed to consist of two narrow walls built of earth and reed fascines, separated by a space of about 6 feet which had been filled with loose earth. This filling appeared to have subsided in many places, leaving small hollows. But the condition of the whole had suffered too much by moisture to permit of exact examination. In the vicinity of the new tower the ground became thickly covered with reeds and scrub, and the attempt to trace the line farther at this point proved fruitless. It had evidently been completely destroyed by the nearness of subsoil moisture. So we had to abandon the search here and were glad to pick up Peculiar wall construction.

[14] Cf. *Serindia*, ii. pp. 602, 696; iii. pp. 1094 sq.

[15] See below, pp. 375, 380, 386, 412.

[16] Cf. *Serindia*, ii. p. 601.

the cart-track which our camels had followed to the south-east. After about four miles' march it brought us across *shōr*-covered jungle ground to our camp, which we found pitched near the western edge of the cultivation of the hamlet of Êrh-kung.

Search for Limes line towards An-hsi.

Next morning we set out again northward in order to trace, if possible, the continuation of the Limes line beyond the ground where we had lost it. After having passed for about two miles through abandoned fields and along outlying patches of cultivation we came amidst luxuriant scrub upon a low mound which seemed to run in the direction of the last-mentioned tower. But the stretch along which it remained traceable in that direction was short, and I therefore decided to turn east towards An-hsi.

Ruined towers T. XXXVIII. a–c revisited.

Here we moved across a scrub-covered waste which divides the scattered village lands of Ssŭ-kung and San-kung. R. Rām Singh had already passed through it in June, 1907, on his survey reconnaissance to the outlying western parts of the An-hsi oasis. After proceeding about four miles we reached the line of ruined towers, T. XXXVIII. a–c, which, as my examination in 1907 had shown, marks the line of the Limes where it runs south of the present An-hsi. A full description of this short but interesting section of the Limes, embodying also the supplementary observations I was able to make on my second visit, has already been recorded in *Serindia*.[17] It will therefore be sufficient here to refer to Fig. 215, which shows the tower T. XXXVIII. a of the Limes line preserved at a point, strangely enough, so close to a much-frequented highway.

Renewed visit to An-hsi.

With this renewed visit I completed the task which had brought me from Tun-huang, and filled up the last gap in our survey of the Han Limes so far as it lay to the south of the Su-lo-ho. At An-hsi town I reached ground with which two prolonged stays on my former journey had already made me familiar. Once again this poor wind-swept place at one of the great crossways of innermost Asia was to serve me as a temporary base. I had therefore reason to feel gratified by the cordial welcome with which I was greeted on arrival both at my old temple quarters and at the modest local Ya-mên.

Surveys along mountains and on Su-lo-ho.

The same day R. B. Lāl Singh safely rejoined me from the mountains. He had pushed his way up from Ch'ien-fo-tung over the barren stony slopes of the westernmost Nan-shan to the foot of the high range that forms the divide between the trough of the Su-lo-ho and the elevated plateaus containing the head-waters of the Tun-huang river. But the snow steadily increased in depth as he approached the pass that might have given him access to the defile above the outfall of the latter, and stopped farther progress with camels. He reached, however, a height sufficient to enable him, as Map No. 39. B–D. 1 shows, to complete satisfactorily the survey of the great mountain barrier which forms the southern ruin of the lower Su-lo-ho basin. He also cleared up the orography of those outlying hill chains which we had crossed in 1907 to the south of An-hsi. He then made his way down past the little oasis of Tung-pa-t'ou (Map No. 38. D. 4) to T'a-shih, and finally surveyed the previously unknown ground over which the drainage from this big valley descends towards An-hsi. Two days later our concentration was completed by the arrival of Surveyor Muḥammad Yāqūb, who had descended the Tun-huang river to its junction with the Su-lo-ho and then crossing the latter to its right bank had carried his survey up to An-hsi.

[17] See *Serindia*, iii. p. 1094.

CHAPTER XI

IN SEARCH OF THE LIMES TO SU-CHOU

Section I.—THE LIMES LINE NORTH OF THE SU-LO-HO

My short stay at An-hsi, from the 14th to the 17th of April, was wholly absorbed by preparations for the journey which was to take me through the north-western marches of Kan-su, and by multifarious writing work. My previous stays had already enabled me to familiarize myself with the geographical features of the oasis of An-hsi, corresponding to the ancient *Kua-chou* 瓜州; these have invested it with importance in spite of its modest local resources, ever since in the first century A.D. the desert route leading from it north-westward to Hāmi was opened as the main line of communication between China and Central Asia. I have fully discussed in *Serindia* the part which, by reason of its position at one of the great cross-roads of Asia, it has played in the history of China's relations with the 'Western Regions'. I have dealt in the same work with its local limitations and scanty remains.[1] Hence I may turn at once to the programme which I planned for my explorations eastwards, and to the preparations it implied. Preparations at An-hsi.

The task I had set myself for the spring was to trace and explore the line of the Limes of Han Wu-ti from the vicinity of An-hsi to the north-east of Su-chou and thus to solve a problem that my rapid surveys of 1907 had raised but not allowed me to clear up. I intended subsequently to move down the Etsin-gol, which carries the united waters of the river of Su-chou and Kan-chou, to near its terminal basin; this was ground which, in view of its physical features and a recent discovery made there by Colonel Kozlov, the distinguished Russian explorer, held out promise of combined geographical and archaeological interest. It was important to complete this double task, practically all to be carried out in desert areas, before the great heat set in, and therefore to move quickly. Planned explorations towards Etsin-gol.

This consideration, combined with regard for our camels, which had to be spared all needless exertions at this season, made it necessary to limit *impedimenta* as much as possible. For this purpose all baggage had to be carefully sifted with a view to leaving behind whatever was not needed for the work of the spring and summer. In 1907 the Ya-mên had proved a suitable place for storing our surplus belongings, and as the local magistrate, now a modest *hsien-kuan*, and no longer encumbered with the dignity attaching to a prefect, was kindly disposed, I was again able to entrust to its safe keeping all our spare baggage, including whatever antiques we had brought along since leaving Lou-lan. Faithful Ibrāhīm Bēg once more remained behind to mount guard over the Ya-mên store-room and to make sure that its contents were kept dry—a necessary precaution after the experience gained in June and September, 1907, of An-hsi's liability to occasional rain from the mountains. *Impedimenta* stored at Ya-mên.

Before our start from An-hsi my party was strengthened by the arrival of a Mongol interpreter whom after many vain endeavours I had managed to secure with the help of Zahīd Bēg. He came from a small camp of Mongol herdsmen who had arrived in the vicinity of Tun-huang from the Kara-shahr side. I had foreseen from the first the necessity of having with us a Mongol possessing a knowledge of Turkī to facilitate our work during our proposed visit to the Etsin-gol tract on the Mongol interpreter secured.

[1] See *Serindia*, iii. pp. 1090 sqq.

southern confines of Mongolia. But our efforts to engage one from among the Mongols grazing in the valleys above Kara-shahr had been frustrated by the official obstruction directed from Urumchi. 'Mālūm', the stop-gap now produced, proved a hardy and fairly intelligent fellow, dressed in a monk's red garb and possessed of some education. In spite of a somewhat irascible temper which involved him more than once in quarrels with the Torgut herdsmen, &c., encountered on the Etsin-gol, he served us well, both on the march and during the excavations at Khara-khoto. Carried, with all that he needed, by his sturdy Mongolian mount, he caused the minimum of encumbrance. At the same time, in order still further to lighten the loads of our camels, I dispatched Surveyor Muḥammad Yāqūb, whom there was no opportunity of employing independently on the way to Su-chou, by cart to that place in charge of all equipment not immediately needed.

March along Su-lo-ho.

The rest of us started from An-hsi on April 18th and at a point north-east of the town crossed to the right bank of the Su-lo-ho. The river in its wide deep-cut bed held nowhere more than two feet of water at the time. This was clear proof that the first spring flood from the snows between the outer ranges of the Nan-shan had passed, while the melting of the winter snow on the high plateau-like valleys drained by the Su-lo-ho head-waters had not yet commenced. We marched along the narrow fringe of scrub-covered ground that separates the river-bed from the bare glacis of piedmont gravel sloping down towards it from the southernmost Pei-shan range, and thus approached, on the evening of the second day, the well-marked defile of the Su-lo-ho; the river passes through this about eight miles above the village of Hsiao-wan, which is situated on its left bank.[2]

Su-lo-ho crossed by Limes line.

I have already explained in *Serindia* the reasons which led me, when passing here in September, 1907, by the high road to An-hsi, to the conclusion that the Limes line traceable from the west to the vicinity of Hsiao-wan crossed to the right bank near this defile.[3] But on that journey I had not myself been able to visit the ground on the right bank. I had indeed noticed towers, which looked as if they might have belonged to the Limes, near the lower end of the defile. Yet the above conclusion was based mainly on the obvious strategic advantages that the configuration of the ground would have offered for taking the border line across the river just at that point. That farther east the Limes lay actually to the north of the Su-lo-ho had been established by the remains of its wall that I had traced near Shih-êrh-tun, north of Yü-mên-hsien (Map No. 40. c. 5).[4]

Defile of Wan-shan-tzŭ.

The defile, as already described in *Serindia*, is formed by a low gravel-covered offshoot from the southernmost Pei-shan range, which juts out here with its end close to the river. On the opposite side it is faced by a rugged and somewhat higher spur, known as *Wan-shan-tzŭ*, the north-eastern continuation of that outermost hill range of the Nan-shan which separates the valley of T'a-shih and Ch'iao-tzŭ from the trough of the Su-lo-ho.[5] This spur falls off precipitously towards the river and is crossed at an elevation of about 200 feet above the latter by the high road leading from Yü-mên-hsien and Bulungir to An-hsi. Where this road passes over a western outlier of the spur before descending to the flat ground towards Hsiao-wan village, I had found it guarded by two large towers. But these in their present condition showed no signs of antiquity. Nor had I been able to trace any remains of the Limes wall on the scrub-covered ground, once probably cultivated, intervening between the western foot of the Wan-shan-tzŭ spur and Hsiao-wan. Thus definite archaeological evidence of the Limes having here crossed the river was still lacking.

Ruined enclosure T. XL. a.

When approaching this ground on the present occasion by the right bank, we had passed at a distance of about thirteen miles from Camp 121 some deserted shepherd huts, marked strangely

[2] See Map No. 40. A. 4.
[3] Cf. *Serindia*, iii. p. 1139.
[4] See *ibid.*, iii. p. 1137.
[5] See Map No. 40. A. 4, 5. The spelling *Wang-shan-tzŭ* in the map is erroneous; cf. *Serindia*, iii. p. 1139, note 8.

enough by a row of five small 'P'ao-t'ais', such as usually adorn main stages on the modern Chinese high roads of these parts and of Hsin-chiang. It was a curious sign of administrative attention extended to the river's right bank where no definite track could be seen, though camel caravans probably descend along it on occasion to An-hsi. Three miles farther on we reached a small ruin, T. XL. a, lying close to the river and almost exactly opposite to the above-mentioned two towers on the left bank. It consisted, as the plan Pl. 14 shows, of a small walled enclosure, about 19½ feet square inside, with a tower 8½ feet square at its north-eastern corner. This tower, built of bricks of the size usual in structures of the Han Limes, 13 inches by 7 and 4 inches in thickness, bore a distinctly ancient look. In order to strengthen it, walls of later construction had been added to it on the north and south. The walls of the enclosure seemed of later date and moreover showed clear signs of repairs. The addition, usually at a later period, of walled enclosures to watch-towers is of frequent occurrence along the Limes on both sides of Tun-huang, and there are examples of it also at other watch-stations farther east.[6] The examination of what refuse was traceable near the north wall and in the little conning room on the top of the tower yielded no dateable remains; nor were ancient potsherds found in the sandy soil outside.

Towers T. XL. a, b. sighted.

Another tower, T. XL. b, was within sight about two miles' distant to the east, at the entrance of the gorge-like portion of the defile. Above it there rose a third tower, T. XL. c, conspicuously placed on the top of a bold hill, which forms the last projection of the spur overlooking the river from the north and facing Wan-shan-tzŭ. On moving towards T. XL. b we passed over gently rising ground, where the bare clay was completely furrowed into Yārdangs running from ENE. to WSW. and from 5 to 7 feet in height.

Remains of *agger*.

We had covered about half the distance to T. XL. b when a dark line of gravel crossing the eroded ground on our right towards the river attracted our attention. On reaching its western end it proved to be an unmistakable *agger*, running with a bearing of S. 100° E. towards the eastern end of the defile. The bank, thickly covered with gravel, was about 34 feet wide at the foot and about 9 feet at the top and rose to about 8 or 9 feet. To the north of the *agger* a shallow ditch about 10 feet wide at its bottom marked the ground from which earth had been dug to form the mound. No trace of fascines or other reinforcing material could be found in the construction of the latter. On the opposite side of the ditch ran what appeared to be a smaller mound, nowhere more than about 5 feet in height, forming a kind of counterscarp. The direction of the *agger* pointed straight towards T. XL. a, though farther west wind-erosion had completely effaced its remains. There could be no doubt any longer that it was there that the Limes had been carried across the river.

Watch-tower T. XL. b.

Having followed the line of the *agger* for over half a mile we turned to the watch-tower T. XL. b (Fig. 205) rising a short distance to the north of it on higher ground. It proved to be exactly of the type of the towers guarding the Tun-huang Limes and had remained in remarkable preservation. It measured 20 feet square at its base, was built of solid layers of stamped clay, 6 inches thick, and still rose to 26 feet in height. Plenty of mat-marked dark potsherds lay around it, also many large stones which might once have been stored on the top for defence.[7] A well-preserved *Wu-chu* coin of the large type was picked up close to the tower.

View commanded from spur.

I next ascended the steep detritus-covered spur which rises to the north of the defile. Small water-cut Nullahs fissure its slopes on all sides; but the surface of the narrow ridges between can have suffered little change, as proved by the clear traces at many points of an old track ascending to the top. This was found by clinometric readings to rise more than 300 feet above the riverine flat. The view from the summit was very extensive. It comprised the whole of the defile and the broad valley eastwards as far as the great circumvallation of Bulungir (Map No. 40. B. 4). The

[6] See *Serindia*, iii. Pl. 34; also below, pp. 377, 389, 394.

[7] Cf. *ibid.*, ii. p. 738.

gently rising Sai towards the outermost Pei-shan hills far away could be observed from here over nearly a day's march, and similarly the foot of the gravel glacis towards An-hsi.

Finds at watch-tower T. XL. c.

It was truly an ideal look-out place, created by nature, and the tower T. XL. c which crowned the summit of the spur showed that its advantages had not been neglected by those who guarded the Limes in Han times. It was built of bricks of the regular size, with a layer of tamarisk brushwood after every three courses. It measured 23 feet square at the base and still stood to a height of about 13 feet, though on the south and south-west much of the masonry had fallen owing apparently to the subsidence of the slope. I noticed that on the east face one course of bricks standing vertically was inserted between two of the usual horizontal courses, a style of masonry very rarely found in the old structures of the Limes. Yet there could be no possible doubt that the tower had been built and occupied in Han times; for among the refuse found in a small conning-place on the top, only 4 feet square, there was discovered, to my special satisfaction, a small but perfectly preserved 'shaving' from a wooden document, bearing Chinese characters in the fine brush strokes characteristic of Han times:[8] also two blank fragments of writing 'slips'. Small objects in wood and dressed leather found among straw of wheat, reeds, &c., are enumerated in the List below.

Mound marking line of Limes.

On descending from the spur we came upon the *agger* again, about two furlongs to the east of T. XL. b; it was here built of layers of gravelly earth and tamarisk brushwood, and we were able to follow it for a mile to Camp 122. It clung closely to the slope of the rocky hillocks that here line the north side of the defile at a distance of only about 200 yards from the present river-bed. The line of the Limes was completely commanded by the crest of these hillocks rising from 100 to 150 feet above it. This clearly illustrates the fact that the line was intended, anyhow along this stretch, not for military defence but only to secure greater safety in policing the border. Where this *agger* descended from the foot of the hillocks to the alluvial 'thalweg' of the river its brushwood layers had completely rotted. But about 400 yards farther to the west we found its place taken by the gravel mound already referred to, running straight towards T. XL. a and at this end still fully 20 feet high. It occurred to me that this substitution of a high and broad mound for the *agger* might have been prompted by the fact that the stretch of flat ground over which the mound runs is liable to inundation at the time of big floods.

Volume of Su-lo-ho.

After examining this ground afresh on the morning of April 20th, I crossed the river to its left bank. The water of the Su-lo-ho flowed here in a single channel about 45 yards wide and about three feet deep in the middle, with a volume of about 1,600 cubic feet per second. A comparison of this volume with that observed in the Tang-ho at Tun-huang two weeks earlier in 1907 suggests that the supply of water carried by the Su-lo-ho is less than that of its tributary until the glaciers and big snow fields at the former's head-waters begin to melt much later in the season.[9]

Temple on left river bank.

On the left bank of the river, at a point a little below our Camp 122, we found the mouth of a small Nullah that descends from the Wan-shan-tzŭ spur occupied by a ruined temple, well built and of recent appearance (Fig. 213). Its name was subsequently given as *Lao-chün-miao* 老君廟. It had apparently been destroyed during the Tungan rebellion. Two steep rocky ridges flanking the mouth of the Nullah were each occupied by a miniature Stūpa and a small square cella, also in ruins.

Wan-shan-tzŭ spur suited for 'Gate' station.

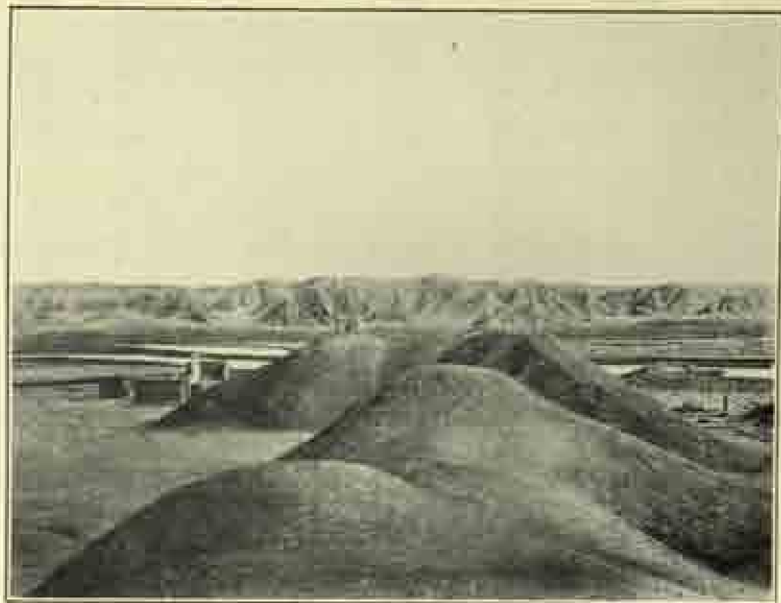
The end of the Wan-shan-tzŭ spur undoubtedly marks a point which for topographical and military reasons might have served very conveniently for the flanking defence of the line of the Limes, before this was extended towards Tun-huang. Probability thus supports in some degree what was assumed in *Serindia*, viz. that the defile here crossed by the road coming from Yü-mên-

[[8] M. Maspero finds in it mention of a *hou* 候 or fire-signal tower.]

[9] See *Serindia*, ii. p. 582.



212. WATCH-STATION T. XLI. *a*, OF LATER DATE, OUTSIDE LIMES LINE, NORTH-WEST OF SHIH-ÊRH-TUN.



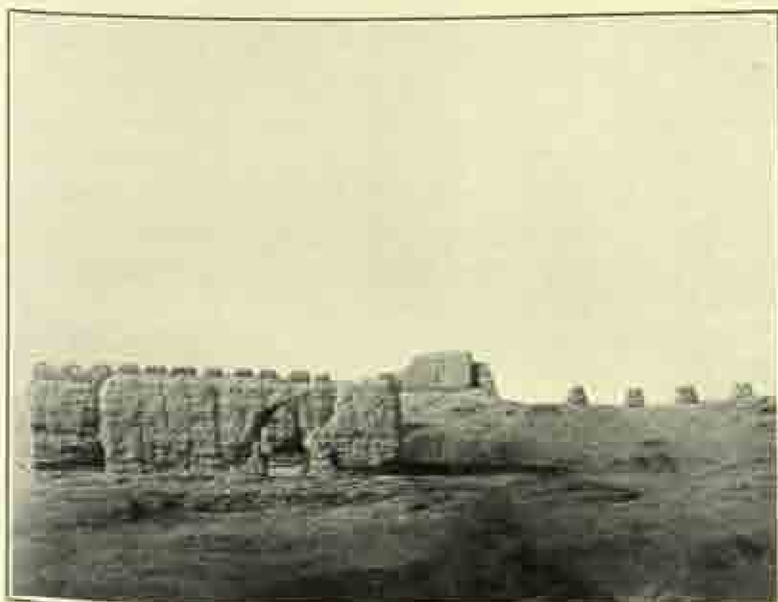
213. RUINED TEMPLE ON LEFT RIVER-BANK, WAN-SHAN-TZŬ DEFILE.



214. WATCH-TOWER T. XLII. *b*, ON LIMES LINE EAST OF SHIH-ÊRH-TUN.



215. WATCH-TOWER T. XXXVIII. *a*, ON LIMES LINE NEAR AN-HSI.



216. RUINED FORT AND WATCH-TOWER T. XLII. *d* OF LIMES, NEAR SHIH-ÊRH-TUN.



217. INTERIOR OF RUINED FORTRESS CH'IAO-WAN-CH'ÊNG ON LIMES EAST OF BULUNGIR.

hsien and Su-chou may at one time have been occupied by a 'Gate' station corresponding to the ancient *Yü-mên* or 'Jade Gate' and to the modern Chia-yü-kuan.[10] In that hypothesis the position chosen for the ruined temple might, perhaps, be accounted for by lingering local worship such as we have found elsewhere clinging tenaciously to 'Gate' sites in the Limes.[11] More light would perhaps be thrown on the question if it became possible to determine the exact location of *Chin-ch'ang* 晉昌. A passage of the T'ang Annals mentions this place as occupied by the frontier station of Yü-mên kuan in A.D. 610, and Chinese antiquarians look for it to the east of An-hsi.[12]

Strategic importance of Wan-shan-tzŭ defile.

Meanwhile I must confine myself to pointing out the strategic importance of the Wan-shan-tzŭ defile for the defence of the high road leading from Kan-su to An-hsi and thence to Hāmi. This is clearly brought out by the fact that a large Chinese garrison had been stationed at Bulungir or Pu-lung-chi, some ten miles to the east of it (Map No. 40. B. 4), in the time of the Emperor K'ang-hsi and Ch'ien-lung, when the marches of Kan-su had to be guarded against Dzungar inroads and preparations had to be made for the conquest from them of the 'New Dominion'.[13] Troops, placed there in the centre of several small cultivated areas, were in a convenient position to guard both the Wan-shan-tzŭ defile and the line of the Su-lo-ho where it might be approached from the north by turning the former.

Double line of *agger*.

On resuming our eastward march on the right bank of the river we came, after proceeding less than half a mile from Camp 122, upon the line of the Limes where it passes between two low ridges of much-decayed rock, forming the south-eastern extremity of the spur bearing the tower T. XL. c. The line for a distance of about 120 yards could be traced here in the shape of a double embankment covered with stones and detritus. The southern embankment or mound had a width of about 24 feet at the base and a height of 10 feet. The bank to the north was less wide and rose only to 5 or 6 feet, the distance between the centre lines of the summits of the mounds being some 44 feet. Beyond that stretch the line was continued for another 80 yards or so by a double *agger*. Here layers of tamarisk branches cropped out on both sides and the reduced width of the *agger* on the south, only 12 feet, indicated a different method of construction. The broken nature of the ground may account for the fact that the line was protected at this point by a double embankment or *agger*.

Line of Limes lost.

A short distance farther on the outcrop of rock disappeared, and all trace of the line was lost in a belt of soft alluvial loess fringing the bed of the river and about half a mile wide. Deep trenches fissured the ground in a direction parallel to the river and seemed to be due to wind-erosion. After having covered about three miles we passed into a belt evidently liable to occasional inundation and covered with luxuriant reeds and bushes. Here, too, no remains of the Limes line were to be seen, but five miles farther on we came upon the ruin of a tower; it stood on a clay terrace overlooking the wide depression of the river-bed, partly covered with thickets of Toghraks and bushes.

Watch-tower T. XLI. a.

This tower, T. XLI. a, had already been sighted by me in September, 1907, from the road west of Bulungir, and had actually been visited some days later by Lāl Singh on a reconnaissance trip made under my instructions from An-hsi. But it was only now possible to make certain that it marked a watch-post on the ancient Limes of Han times. It was built of layers of stamped clay and measured about 20 feet square at its base. The northern face of the tower had fallen and the remaining portion had split into two parts. Yet in spite of this far-advanced decay the antiquity of the ruin was quickly established. Potsherds of the dark-grey mat-marked Han type covered the bare clay around, and definite confirmation was supplied by the fragment of a broad wooden

[10] Cf. *ibid.*, ii. p. 727; iii. p. 1099, note 20.

[11] See above, p. 369; *Serindia*, ii. pp. 602, 696; iii. pp. 1094 sq.

[12] Cf. *Serindia*, iii. p. 1099, note 20, for references to texts quoted by M. Chavannes.

[13] See *ibid.*, iii. pp. 1138 sq.

slip, still retaining some Chinese characters, which emerged from a small refuse layer at the south-west corner.[14]

Border line keeping to right river bank.

I now felt assured that the border line guarded in Han times had here kept close to the right bank of the river, as I had already assumed in 1907 when we surveyed this ground from the high road far away to the south. But no trace of the wall or *agger* which once must have passed the tower survived in the belt of vegetation that lined the valley at this point. Nor was a wall traceable farther on where this belt gradually narrowed and finally gave place to bare clay, furrowed by the wind into small Yārdangs, 4 to 6 feet in height. But a conspicuous tower rising above a bend of the river higher up afforded guidance; it was reached after a march of about five miles from the last tower and, like it, proved to be of ancient construction.

Finds at watch-tower T. XLI. b.

This watch-tower, T. XLI. b (see plan, Pl. 14), was built of layers of stamped clay and, being in very fair preservation, still rose to a height of 29 feet on a base 20 feet square. With the help of the foot-holes still surviving on the west face and of a rope thrown over the top one of the men managed to climb to the summit. Here he found the wooden spoon T. XLI. b. 02; a rolled leaf holding some drug made up into small yellow rods, 01; fragments of leather, 06; and a coarse woollen fabric, 018, &c., as described in the List. Of the chips of wood, 04–5, one retained faint traces of Chinese characters. Among the abundant fragments of Han pottery found at the foot of the tower, the pieces of a vessel, 014–17, may be mentioned on account of their greyish-brown mottled glaze. An enclosure, measuring 27 feet along its northern wall, which alone still rose a few feet above the ground, once adjoined the tower to the west. The refuse of straw and dung dug up here yielded no finds; but a broken *Wu-chu* coin was picked up outside. A low mound of earth, without clear indication of fascines, was found forming a rough semicircle to the north of the tower and probably represents a small segment of the otherwise wholly effaced Limes *agger*.

Clay terrace T. XLI. c, converted into tower.

Proceeding about two miles farther across a belt of bare clay almost wholly cut up into small Yārdangs, we reached a conspicuous clay terrace, T. XLI. c, which had been converted into a natural tower by roughly cutting down the sides. It measured about 20 feet square at the base and stood to a height of 21 feet. That it has been used as a watch-station and probably occupied for a long time was proved by the abundance of potsherds of Han type that thickly covered the ground near by, especially to the south. Here, too, a broken *Wu-chu* coin was found. A well-marked *agger*, about 10 feet in height, passed round the eastern, northern, and western faces of the little Mesa at a distance varying from 32 to 36 feet. But no continuation of this mound to the east or west could be traced.

Watch-tower T. XLI. d.

We camped for the night by the river about half a mile to the south, and on the morning of April 21st resumed our survey eastwards. After proceeding only a mile and a half we arrived at T. XLI. d, a conspicuous tower of stamped clay, rising within 30 yards of the river bank and facing the lower end of the village lands of Chiu-tao-kou on the bank opposite. Owing to wind-erosion which had undercut the clay soil to a depth of 4 feet at the northern foot of the tower, that side had fallen down in solid blocks of *pisé*. The other half of the tower still stood to a height of about 28 feet. Ancient pottery debris lay in plenty at its foot, and the fragment of a *Wu-chu* coin was picked up near by.

Remains of watch-station T. XLI. e.

After covering another mile and a half across the narrow wind-eroded belt of clay between the Sai and the river, we arrived at the westernmost foot of a low rocky ridge which juts out here from the gravel-covered glacis towards the river. Noticing debris of Han pottery on the track which winds here along the riverine terrace, I followed it up northward to a little hillock that rose some 30 to 40 feet higher. Fascines of tamarisk branches plainly marked this as the site of a watch-

[14] For specimens of pottery and a few other small relics, see the Descriptive List below, p. 419.

station; but only the base had remained to a height of 2 or 3 feet, together with such refuse as the floor of a small room placed on it had retained. Evidently the watch-post was of the type illustrated by T. XXIII. a or T. XXIII. g, consisting of a small room placed in a commanding position.[15] Among the miscellaneous refuse was found the wooden spindle, T. XLI. e. 02 (Pl. XLVII), and just outside the fascines an inscribed *Wu-chu* coin of the large type.

The track skirting the foot of the low ridge, where it abuts on the river-bed, brought us, a mile farther on, to a big tower, T. XLI. f. It was perched conspicuously on the top of a detached hillock, rising about 150 feet above the riverine flat. The tower with its loop-holed parapet looked decidedly modern, but closer examination soon showed that an ancient tower of Han type had been enlarged on the east, south, and west by a facing of late masonry. In this the bricks were set on end, after the fashion prevailing in modern structures of Kan-su. The original tower was solidly built of bricks measuring 15 inches by 10 and 4 inches thick and with reed layers between the courses at intervals of 3 feet 6 inches. Its base measured 24 feet square. The addition of later masonry, with bricks $14 \times 6\frac{1}{2} \times 3$ inches, had increased this to 32 feet. The present height is 32 feet. The southern face showed very clearly the arrangement of foot-holes by which to reach the top. The tower commands a distant view along the river both to the east and west. Large restored tower T. XLI. f.

At first only slight refuse was found covering the rocky soil at the southern foot of the tower. But search on the stone-covered slope soon showed that rubbish lay concealed on that side down to about 20 feet below the base and to a depth of about 2 feet. On rapidly clearing this, the miscellaneous relics described in the List below were brought to light amidst refuse of straw, chips of wood, &c. They include a number of wooden writing slips, blank or effaced; the fragment of a writing tablet, made of the wood of some conifer, T. XLI. f. 01; numerous small pieces of plain textiles of silk and what appears to be cotton, &c. No doubt all small objects thrown down here by those who occupied this watch-post had suffered to some extent by the drainage from occasional rain and snow. Yet one wooden slip, broken into three pieces, T. XLI. f. 026, still retained its writing in Chinese characters of Han ductus [mentioning the officer in charge of a watch-tower]. A Chinese coin found here, bearing traces of the inscription *Huo-ch'üan*, also attests occupation in Han times. Two copper coins of the Manchu period which were discovered near the tower had obviously been left by men who had kept guard there in recent times. Finds among rubbish on slope.

A small enclosure of stamped clay, T. XLI. g, standing at the foot of the hillock, had a much more recent appearance. The numerous fragments of glazed ware and of porcelain found within and near by were in harmony with this, and likewise a coin apparently of the K'ang-hsi period.[16] We had skirted the foot of the ridge for only a quarter of a mile beyond when I noticed layers of tamarisk brushwood cropping out on the stony slope. They obviously marked a much-decayed segment of the Limes *agger*. It was traceable here for about 40 yards, running parallel to the river, and reappeared for another short stretch close to the river less than half a mile farther on. Later enclosure at foot of hillock.

Then all trace of the border line was lost on a desolate belt of bare clay intervening between the river and the foot of the gravel Sai. It showed signs of far-advanced wind-erosion, Mesas up to 20 feet in height rising here and there among smaller Yārdang-like terraces. We had moved thus for about six miles eastwards without coming upon any sign of wall or towers when, on passing into a gravel-covered Sai, a long straight line on our left rising above the level ground attracted our Mongol's attention. On reaching it, about a mile away from the river, it revealed itself by the brushwood cropping out on the sides of the low mound as a much-decayed stretch of the Limes *agger*. Close to where we had struck its line the remains of a completely ruined tower marked the position of a watch-station, T. XLI. h. From the scanty refuse near it we recovered two wooden slips, as used for Chinese records, but effaced. Ruined tower T. XLI. h.

[15] See *Serindia*, ii. p. 721; above, p. 351.

[16] For specimens of this ware, see the Descriptive List below, pp. 420 sq.

SECTION II.—FROM CH'IAO-WAN-CH'ÊNG TO SHIH-ÊRH-TUN

Fortified town in ruins.

We had already, some miles before reaching T. XLI. h, come in sight of the ruined walls and temples of a fortified small town or *ch'êng* 城 standing by the river, which in 1907 had attracted my notice from afar, as I passed along the high road between San-tao-kou and Bulungir. Its name had been then given as *Ch'iao-wan-ch'êng*; the local name, as now actually recorded on the spot, was P'êng-chia-chuang 彭家庄.[1] But as this seemed to apply rather to an isolated habitation outside, which was still tenanted by some priests and also served as shelter for occasional caravans, than to the ruined town, it may be convenient to retain the appellation *Ch'iao-wan-ch'êng* as more appropriate to the latter.

Enclosing walls.

The small well-built fortress was an impressive sight, and though I knew that its abandonment dated only from the great Tungan rebellion of the early sixties of the last century, the observations made on inspecting its ruins proved distinctly instructive. The little town, which was said to have been tenanted by a Chinese garrison up to its destruction, is enclosed by massive walls of stamped clay. These form a rectangle, as the sketch-plan in Pl. 15 shows, about 380 yards by 135 and approximately orientated. The southern wall rises within a hundred yards of the right bank of the river.[2] A large gate vaulted in hard brickwork leads through the wall on the south and another through that on the north, in each case protected by a square outwork which is entered through a similar gate.

Streets lined by ruins.

The impression received on passing into the interior from the river-side was that of a Roman *castrum* translated into its nearest Chinese equivalent (Fig. 217). A broad and perfectly straight street, lined by houses of fairly solid construction but all reduced to the condition of roofless ruins, leads from either gate right across to the wall on the opposite side. In their centre these two streets are crossed at right angles by a third one stretching along the longitudinal axis of the rectangle. At the end of the street leading from the southern gate I found a decayed temple retaining much-battered statues of a Buddha and Lokapālas. Two ruined houses near it proved to be tenanted by some monks, the only inhabitants of this solitude. Survival of local worship accounted for their presence and for the partial preservation of the shrine. The Ya-mên at the end of the other street had been stripped of whatever could be of any possible use, and of its past dignity retained only two quaint lions in stone guarding its entrance.

Time of construction.

The gates were once surmounted by ornamental pavilions, as were also the corner towers of the circumvallation. These superstructures have crumbled into almost complete ruin; but many fragments of the tasteful brick relievos which had served for their ornamentation still survived, whether *in situ* or built into little shrines recently restored. The whole of the remains within the ruined *ch'êng* suggested that its structures had been systematically planned and built at one time. This was evidently done under a régime which could assure effective completion even on these distant outskirts of the Empire. No information was obtainable from the ignorant 'Ho-shangs' as to the epoch when the town was constructed. But judging from its position far beyond the 'Great Wall' of Ming times and from the style of the decorative relievos of which a few specimens are described in the List below and illustrated in Pl. L, it can scarcely be doubted that this fortified frontier station owed its creation to the spacious times of the first Manchu Emperors, from K'ang-hsi to Ch'ien-lung.

[1] The spelling *P'êng-chia-chiang* of Map No. 40. B. 4 is due to a draughtsman's error.

[2] On Map No. 40. B. 4 the town symbol has been placed too far from the river, entailing a similar draughtsman's error in the position of the Limes *agger* north of it.

The purpose served by its construction at once become clear when I found that Ch'iao-wan-ch'êng guarded the approach to the river of a route leading across the Pei-shan 'Gobi' from Hāmi, on the most direct line between this oasis and Su-chou. It is a route well suited for traffic with camels and horses, and was followed in 1898 by Professor K. Futterer, who has carefully mapped and described it.[3] As long as the *castrum* held its garrison, it must necessarily have been used as the place where caravans when leaving for, or coming from, the Hāmi side took their supplies, refitted, &c.; for its position on the river and close to cultivated ground on the other side made it obviously a most convenient bridge-head, as it were, for the journey across the desert north-westwards. Guarding route to Hāmi.

It was to serve the needs of the traffic moving along this route as well as to shelter those who ministered to the wants of the garrison, that the suburb of Sarais, booths, &c., had grown up which I found extending, all in ruins, round the western and southern walls of the *castrum*, as shown by the plan, Pl. 15. The irregular shape and comparative weakness of the *enceinte* protecting this suburb seemed to indicate that its growth had been gradual and anyhow had not been provided for in the original plan of the station. Suburb outside walls.

Since the little town was destroyed and abandoned, the reasons which made Ch'iao-wan-ch'êng the southern terminus for the desert route had for the most part ceased. On this account those who use it now prefer to do the last march from Hāmi on a track which takes them slightly farther to the east. It allows them to strike the river at a point about five miles farther up, where the bare gravel belt on its right bank gives place to a sandy area with abundant vegetation suitable for grazing, as seen in Map No. 40. c. 4. At Ch'iao-wan-ch'êng only the scantiest grazing is obtainable. I subsequently found this new track, which Professor Futterer's guides also had followed, clearly marked at T. XLI. k where it crosses the *agger* of the Limes.[4] Present caravan track.

There was much in the appearance of the ruined town and in its position as the terminal guard-station of a desert route to bring vividly to mind the Lou-lan station L.A., where the conditions, it is true, are of far more advanced decay. This impression was much strengthened by the examination of the ruined structures scattered over the open ground to the north of the circumvallation. The fact that the line of the ancient Limes actually crossed this ground naturally invested it with additional antiquarian interest. On a massive clay base about 150 yards from the northern gate rose the ruins of a large temple. It was so completely shattered that the interior plan of it could be recovered only by regular excavation. A number of small shrines to the east of it, which attested, perhaps, the piety of individual officers, &c., of the garrison, had suffered far less. Ruined shrines to N. of town.

Going another hundred yards to the north I found the Limes *agger* running here in a perfectly straight continuous line across the bare gravel soil and still rising to a height of 3 or 4 feet in most places. A short distance beyond it I came upon two shallow parallel ditches, with a ruined pavilion by their side. They would have presented a puzzle to me, as they well might to some

[3] See Futterer, *Geographische Skizze der Wüste Gobi zwischen Hami und Su-tschóu*, Petermanns Mitteilungen, Ergänzungsheft No. 139, 1902. The map by Dr. B. Hassenstein accompanying the paper and embodying Professor Futterer's very careful compass survey of the route is on the scale of 1 : 300,000 (not, as the title by a draughtsman's mistake states, of 1 : 1,000,000).

[4] It is due to this change of route on the last march that Professor Futterer did not notice Ch'iao-wan-ch'êng, though he must have passed within four miles or so of it. At the time of his journey over this ground (May 25th) visibility was bound to be very low owing to the prevailing dust-haze of the season. But the mention he makes, *loc. cit.*, p. 23, of a reported 'old monastery', deserted except for a few monks, evidently refers to it, though his guides seem to have wrongly placed the ruined site on the left bank of the river.

I may note here that if on Professor Futterer's map the perfectly straight direction of the initial portion of his route from Camp XIV were continued right down to the Su-lo-ho, without the subsequent bend to the south-south-east, the route would abut on the river at a point exactly corresponding in bearing and distance to Ch'iao-wan-ch'êng.

archaeologist of the distant future, had my Ho-shang guide not explained that they served to guide the course of mounted soldiers when practising musketry exercise at the gallop!

Ruined temple by Limes wall.

But an observation of true antiquarian interest awaited me when I reached the point on the Limes *agger* where the caravan track to Hāmi crosses it, about 350 yards from the north-west corner of the *ch'êng*. A row of five small Stūpas was found here standing just outside and parallel to the low gravel mound, and another of three more 'within the wall'. These little Stūpas, meant for funeral monuments, would by themselves have sufficed to attest some lingering sanctity in the spot. But even more definite evidence that local worship still clung to it was provided by a large ruined shrine, which rises here immediately to the south of the Limes line and close to the east of the route. A portion of it had been restored recently, as I was told, in memory of those who fell while defending Ch'iao-wan-ch'êng against the Tungans, and quarters of Tibetan Lamas in an outer court showed that the shrine was, indeed, still 'in being'.

Survival of local worship.

I have repeatedly had occasion to show that Chinese sentiment has since early times invested with a kind of religious respect all those places where routes passed 'outside the wall' of the Empire.[5] We are therefore fully justified in assuming that here, too, it is the survival of ancient local worship that accounts for the presence of the modern shrine and Stūpas, just where topography enables us to locate a true 'Gate station' of the Limes. I was unable to trace any ancient remains at the spot. But such may well lie hidden under the large modern temple. In any case it deserves to be noted that the point where the Hāmi route crosses the *agger* lies exactly half-way between the ruined watch-towers T. XLI. h and T. XLI. i, these standing a mile distant to the west and east respectively. The distance of one mile is the usual one between the towers located farther east along this portion of the Limes. It is accordingly very probable that this point, too, once had its watch-post well placed for guarding the route to Hāmi.

Advantages of route guarded.

It only remains for me to add a few remarks about the geographical and quasi-strategic advantages that favoured the selection of the Ch'iao-wan-ch'êng site as the starting-point for an alternative route from the Kan-su marches to Hāmi. They also explain the placing of a garrison here, probably early in the eighteenth century, to guard this and other possible approaches from that side. The route, as already mentioned, represents the most direct line of communication between Su-chou and Hāmi practicable for laden animals. It could not compete in importance of traffic with the An-hsi–Hāmi route, because the greater height and ruggedness of the successive Pei-shan ranges on the line it follows precludes the use of carts, for which the more westerly route starting from Hāmi is on the whole well adapted.[6] On the other hand, it appears to offer greater facilities for camel grazing than the latter route, and the same advantage holds good also, as we shall see, of its eastward continuation towards Ying-p'an (Hua-hai-tzŭ) and Su-chou.

Vicinity of cultivable ground.

The selection of Ch'iao-wan-ch'êng as a base for this desert route during Manchu times was probably influenced by the fact that it was the place to which supplies from the cultivated area south of the Su-lo-ho could be brought most conveniently. As the Map No. 40. B. 4, 5 shows, a long belt of cultivation extends towards it from the vicinity of the large village of San-tao-kou on the Yü-mên-hsien–An-hsi high road. In consequence of the devastation attending the Tungan raids many farms had been abandoned in this belt, and in spite of the irrigation facilities offered by the large canal-like branches of Su-lo-ho descending here over the river's alluvial fan, much of the land still remains untilled. Yet, even so, patches of cultivated ground are to be met with to-day within two or three miles of the abandoned station. At the same time communication with this ground from the northern bank of the Su-lo-ho is here particularly easy. The river is here confined

[5] For references to such sites along the Han Limes, see above, p. 369, notes 14, 15.

[6] Cf. Futterer, *Wüste Gobi*, p. 4.

to a narrow bed, cut between steep clay banks about 20 feet high. Where a bridge from the suburb crosses the bed, it is only 50 feet wide.

Reason for guarding right bank.

There remains finally to be considered the question why the military station intended to guard the southern end of the desert route was placed on the right bank of the river, on ground quite incapable of cultivation and otherwise far from attractive. The answer to this question will also help to throw light on the reasons which induced the builders of the Han Limes to carry its line, from the great bend of the Su-lo-ho as far as the spur opposite to the Wan-shan-tzŭ hills, close along the right bank over what at all times must have been desolate desert. I believe that the reason must be looked for in the obvious advantages of military defence, which, being due to topographical facts, have remained unchanged ever since Chinese power first reached these westernmost confines of Kan-su.

Access to water barred.

At first sight the river might suggest itself as the natural and most convenient border line, and the cultivated ground on the left bank as the most suitable position for a military station intended to guard the termination of a route across the desert by which attack from the north-west might threaten these marches. But closer consideration soon disclosed that the determinant factor for defence here is not the river, easily fordable during the greater part of the year, but the waterless desert stretching in a wide belt immediately to the north of it. Across the barren gravel glacis of the Pei-shan no water is to be found nearer than a marshy spring which Professor Futterer's map places at a direct distance of seventeen miles from the position of Ch'iao-wan-ch'êng, in a depression marked also by our survey.[7] It is obvious that, by preventing access to the water of the river, raids upon the oases south of the Su-lo-ho and the great line of communication leading past them could be checked far more effectively than by keeping a watch merely on the river's left bank.[8]

Chinese eye for military topography.

We may thus, I believe, reasonably account both for the line chosen here for the border 'wall' of Han Wu-ti and for the occupation of Ch'iao-wan-ch'êng as a military station some eighteen centuries later. Both were measures resulting from a policy of Chinese expansion towards Central Asia, and on both occasions those responsible for the military safeguarding of the 'corridor' of the lower Su-lo-ho valley, essential for that policy, were guided by the same keen eye for the quasi-strategic aspects of topography that has remained a traditional inheritance of Chinese military organization.

Alternative route to Hāmi.

In connexion with Ch'iao-wan-ch'êng it may here be mentioned that its position was likewise well chosen for watching a second route that debouches from the Pei-shan in this vicinity. I mean the route followed first by Messrs. Grum Grishmailo and then by M. Obrucheff. It starts some 8 miles higher up from the bend of the Su-lo-ho and thence leads with a winding course, first north and then north-west, to its junction with Professor Futterer's route at Mo-t'ou-ching (Map No. 37. D. 4).[9] This route as a line of communication with Hāmi is less direct, but nevertheless of some importance, as it connects past the wells of Ming-shui (Map No. 40. A. 1) with other tracks prac-

[7] Regarding this point, marked by Professor Futterer's Camp XIV, see *ibid.*, pp. 21 sq. His mention above this of the ruins of a large stone-built structure may be taken as evidence of prolonged and regular use of the route.

[8] The question might be asked why the same advantage was not taken farther west by keeping the Limes line on the right bank below Wan-shan-tzŭ. The explanation may, perhaps, be found in the fact that, while down to this point cultivated areas needing protection approach from the south close to the river's left bank, the main oases of An-hsi and Tun-huang lie much farther away from it. A line carried along the northern bank of the river would have been more difficult to guard, victual, &c., from a distance, and the deltaic expansion of the river-course north of the Tun-huang area would have considerably added to this difficulty.

In the case of the Limes beyond Tun-huang it must, of course, be remembered also that, like a Roman Limes in the true original sense, it was intended mainly to facilitate the safeguarding of the trade and military route into the Tārīm basin and not for the protection of a settled tract; cf. *Serindia*, ii. p. 725.

[9] Cf. Futterer, *Wüste Gobi*, p. 2.

ticable for nomads by which the easternmost Pei-shan can be crossed from the side of Mongolia and Dzungaria.

Finds at tower T. XLI. i.

By sunrise of April 22nd I resumed the survey of the Limes *agger* eastwards. It was followed with ease for a mile over the gravel soil, to where the much-decayed remains could be traced of a watch-post with walls 3 feet thick built of bricks measuring 14" × 9" × 4". Among the miscellaneous small objects found on clearing the refuse and described in the List below may be mentioned the part of game-trap, T. XLI. i. 06 (Pl. XLVI), interesting by its type still known in widely distant parts of Africa and Asia.[9a] Besides pieces of mat-marked grey pottery of Han type, fragments of porcelain were also picked up here, suggesting occupation of the post in later times also.

Positions of watch-posts T. XLI. j, k.

For about two miles farther the low straight mound marking the line of the Limes remained clearly traceable. But the position once occupied by a watch-station, T. XLI. j, at a distance of one mile, and by another, T. XLI. jj,[10] at a similar interval, could be recognized only by low gravel mounds thickly strewn with potsherds of Han type. The effects of wind-erosion became still more noticeable beyond, where the ground turned to bare clay, with the line of the *agger* indicated only by a perfectly straight line of dark gravel running across it on the surface. Having covered about four miles from Ch'iao-wan-ch'êng, we crossed the well-marked track by which the route from Hāmi, above mentioned as having been followed by Professor Futterer, reaches the right river bank in present times. Close to it a clay terrace, about 3 feet high and about 75 feet in diameter, thickly strewn with Han pottery fragments and stones, marked the spot once occupied by a watch-post, T. XLI. k. A large *Wu-chu* coin was found near it.

Remains at T. XLI. l.

Gravel-covered patches of ground allowed the line of the *agger* to be followed for about a mile farther to T. XLI. l. There a couple of small Stūpas, built of bricks on end and obviously of late construction, were found close to the line of the Limes. A clay terrace about 180 yards to the south of the latter bears the remains of a small domed structure, partly cut into the clay. The pottery debris found near it seemed mostly of later date, and so also the ornamented bronze stud, T. XLI. l. 01. A curious feature of the site was a canal, about 10 feet wide, traceable for about a quarter of a mile and running from east to west at about 60 yards distance within the line of the *agger*. It may have once received water from a shallow Nullah upon which we came on our way to T. XLI. m.

Beyond T. XLI. l. the trace of the *agger* was soon lost on ground which had suffered much from erosion and which gradually passed into a wide sandy expanse abundantly covered with reeds and scrub. The tower, T. XLI. m, drew us away to the south-east, but when reached after we had proceeded about 2 miles from T. XLI. l, proved to be of later origin, with a miniature shrine on its top.

Depression along Su-lo-ho bend.

We had now entered a depression three or four miles wide, extending along the right bank of the Su-lo-ho, where the river curves round in its bend to the west. I had passed across the south-easterly portion of this depression in September, 1907, on the reconnaissance which took me from Yü-mên-hsien to the remains of the Limes near Shih-êrh-tun (Map No. 40. c. 5) and thence to San-tao-kou on the An-hsi high road.[11] I had then ascertained that this area, extending between the gravel glacis of the Pei-shan and the river, probably represents an old lacustrine bed. It still receives abundance of moisture by percolation and in parts by seasonal inundation from river-beds branching off below Yü-mên-hsien. I was therefore aware that on ground such as this the chance of any remains of the Limes surviving was slight. On the other hand, I knew with certainty where I should find the continuation of its line to the south-east.

Track followed to river bank.

This made me regret less the necessity of leaving the probable direction of the line at this point, and of turning south in order to resume touch with our baggage train, which had wrongly

[9a] Regarding the use of this trap, see Mr. H. Balfour's note in *Add. & Corr.* to p. 421.

[10] Not marked on Map No. 40. B. 4.

[11] Cf. *Serindia*, iii. pp. 1136 sqq.

been taken along the caravan track leading from T. XLI. k to the river. After gaining its right bank we followed it to the point where the river turns almost due south towards Yü-mên-hsien. The tower T. XLI. n which stands here, built of stamped clay and about 12 feet square at its base, marks a usual halting-place for caravans coming from or going to Hāmi. It is known by the name of the village, Ma-ku-t'an, the fields of which approach close to the left bank.[12] The tower appeared to be of late date, and the small metal objects picked up near it afford no chronological indication.

The river flows here and for several miles below in a narrow bed cut into steep banks of clay, 30 to 40 feet in height. Where we measured its volume, it was only about 20 feet wide, and from 3 to 4 feet deep. The volume roughly ascertained was only about 180 cubic feet per second, and obviously represented but a very small proportion of the water carried by the Su-lo-ho at this season, the rest being all absorbed by the branches that irrigate the lands of San-tao-kou and the other oases westwards, and by the several canals of Yü-mên-hsien. Volume of Su-lo-ho.

Leaving the route towards Shih-êrh-tun which had already been surveyed in 1907, at a distance of half a mile from T. XLI. n we turned to the north-east in order to reach a conspicuous tower already sighted on the previous journey and evidently lying in the continuation of the line of the Limes. The level plain, which we had found in 1907 distinctly marshy at a point farther to the east, had here the appearance of a marsh bed dried up in a recent period. Where the ground was beginning to rise slightly and the clay bottom of the depression had lain dry longer, wind-erosion had begun to scour patches left unprotected by vegetation. Elsewhere drift-sand had accumulated in low dunes amidst reed growth and scrub. Dried-up lacustrine depression.

We came to the tower T. XLI. o (Fig. 212) at the point where this dried-up lacustrine depression gives place to gravel Sai and the outermost low stony ridges from the north crop out. It was built in stamped clay on a base 32 feet square and like an adjoining square enclosure (Pl. 14) bore no appearance of great age. But about 50 yards to the south of it, closer examination disclosed the line of the Limes *agger* running for about a furlong along a low ridge of detritus. It was clearly indicated by layers of tamarisk branches cropping out on the sides of a low straight embankment of gravel and rubble. It was aligned north-westwards upon T. XLI. l, but no intermediate towers could be seen; nor was the Limes likely to have left any conspicuous traces where it crossed the vegetation belt along the shore of the old marsh bed. Just opposite to T. XLI. o and close to the south of the *agger*, abundant fragments of Han pottery marked the position of a watch-post that once occupied the stony crest. Limes line traced south of T. XLI. o.

Significantly enough not a single potsherd of this type could be found near the walled enclosure outside the Limes line, while pieces of glazed ware and porcelain abounded. A small inscribed Chinese tablet was found just outside that enclosure, but the writing on it looked late. A well-marked track passes close to the little fortified post; it comes from Shih-êrh-tun and leads, as subsequently ascertained at the latter place, towards the previously mentioned route of Obrucheff and Grum Grishmailo, which it probably joins near the well shown in Dr. Hassenstein's map accompanying Professor Futterer's paper as 'Ulun-tschuan'. The watch-tower T. XLI. p which was sighted on rising ground to the north-east was obviously meant to guard the approach towards the cultivated area from the same side. As seen through our glasses it had a recent appearance. Route guarded by tower T. XLI. p.

We followed the line indicated by the *agger* segment from T. XLI. o to the south-east along the foot of the last detritus-covered offshoots of the hill chain. The *agger*, with its layers of tamarisk brushwood exposed and still rising to 5 or 6 feet, reappeared in three places, in each for a distance of about a quarter of a mile. After a tramp of about three miles we reached the remains of a ruined Ancient *agger* traced to SE.

[12] The cultivated area of Ma-ku-t'an, as shown in Map No. 40. c. 5, ought to have been extended farther north. On September 21, 1907, we had passed here in the dusk and failed to notice this detail.

tower, manifestly old, T. XLI. r, built of bricks measuring 14 × 9 × 7 inches. Here a *Wu-chu* coin of the large type was picked up on the surface. Close to the tower, the walls of a small guard-room, only 6 feet square inside, still stood to a height of about 4 feet. At the entrance the thick wall still showed the socket meant to hold a heavy bar.[13] A small mound which we had passed about half-way, T. XLI. q, consisted of decayed masonry with bricks set on end. It probably marked the remains of a later tower erected where a post of the ancient Limes had once stood.

Village of *Shih-êrh-tun*.

From the vicinity of this mound onwards soft salt-encrusted ground, evidently liable to be flooded at times, extended to the south. Skirting this we reached, after covering another mile and a half, the western end of the low rocky ridge which bears the Limes towers, T. XLII. a–d, above the small village of Shih-êrh-tun. A rapid reconnaissance made to this ground from Yü-mên-hsien on September 21, 1907, had enabled me, as already recorded in *Serindia*,[14] to locate here definitely the line of the Limes. In view of the geographical interest which, as we shall see presently, this ground offers, I was doubly glad to make a day's halt by the lively little stream which passes north of the quiet tree-girt farms of Shih-êrh-tun, and to use it for the closer examination of the remains of the Limes and for survey work around it.

Watch-tower T. XLII. a.

These remains extend along the outermost of a succession of low narrow ridges, which mark here the last offshoot of the southernmost Pei-shan range overlooking the Su-lo-ho valley at its westward bend. These dark ridges, all uniformly bare of the slightest vegetation, are composed of much-fissured rock, which to me looked like granite, but for the most part are thickly covered with stony detritus. Where the outermost ridge sinks away to the salt-encrusted level plain extending westwards, I had in 1907 come upon a definite trace of the *agger*, marked by small half-petrified branches of tamarisks and Toghraks strewing the slope. From this point the line of the *agger*, growing gradually more defined with twigs and branches embedded between layers of detritus, brings us, as the plan in Pl. 15 shows, at a distance of about 300 yards, to the watch-tower T. XLII. a. It stands on a small rocky hillock about a furlong south of the rampart and at a height of about 50 feet above the foot of the ridge. It commands, like the towers T. XLII. b–d eastwards, a complete view of the line to be guarded in front as well as of the flat scrub-covered ground behind. The tower is built of stamped clay with thin layers of reeds dividing successive layers. It had suffered much decay, and a fissure due to wind-erosion cuts through the portion still standing, which reaches a height of about 10 feet.

Mound marking post T. XLII. b.

For three-quarters of a mile the *agger* runs on towards another small rocky eminence, where a completely decayed clay mound about 12 feet high is all that remains of the tower T. XLII. b. Plentiful fragments of Han pottery indicate that it was occupied contemporaneously with the wall. From some refuse close to the mound we recovered a roughly carved piece of Toghrak wood, perhaps the lintel of a door, and the fragment of a *Wu-chu* coin. At a point of the crest of the ridge between the two watch-posts just named, two or three heaps of reed-straw permeated with sand looked as if they had been deposited, like the stacks of fascines found at watch-stations of the westernmost Tun-huang Limes, for the purpose of being lit as fire signals.[15]

Rampart traced eastwards.

From T. XLII. b, which lies immediately behind the *agger*, the line of the latter can be traced quite clearly for a mile, on the stony ground of a little plateau that extends by the side of the ridge. Then the line is lost eastwards in a belt of scrub-covered sandy soil. Layers of brushwood are everywhere exposed along the sides of the *agger* or can be quickly found by digging. The rampart, nowhere more than 4 or 5 feet in height, has a width of about 14 feet on the top. In many places it has a curious depression along the centre line, about 6 feet wide, recalling a similar feature which

[13] Cf. *Serindia*, ii. pp. 645, 658.
[14] Cf. *ibid.*, ii. p. 1137.
[15] See *ibid.*, ii. pp. 650, 677 sq., 711, 754; above, p. 344; below, pp. 389, 395.

I had observed at a point of the Limes where it approaches An-hsi from the west.[16] As the cutting made at one place showed more substantial layers of brushwood on the outside faces of the *agger* than within, these depressions may well be the result of partial subsidence.

Watch-towers T. XLII. c, d.

The stretch of the Limes rampart just described, short as it is, is guarded by two towers, T. XLII. c and T. XLII. d, and immediately to the south of the latter lies the small fort to be presently described. The placing of two watch-towers so close together on the ridge calls for notice. It may be explained either by the special need of protection for the Limes where its line was immediately adjacent to a settled area, or else, and perhaps more justly, by the fact that neither from the tower T. XLII. d nor from the little fortified post below it can the watch-station T. XLII. b be seen. T. XLII. c is a tower of stamped clay, showing the characteristic reinforcing layers of reeds at intervals. Its base measured 20 feet square, but later repairs in clay and brickwork had enlarged this. On the west face these encasing additions had fallen and exposed the original dimensions. The present height is 14 feet.

Walled enclosure.

The tower T. XLII. d (Fig. 216) appeared to have undergone repeated repairs, and now, with much brickwork added at the south-east corner and a later clay facing elsewhere, measured 33 feet square at the base. But here, too, an older core of stamped clay could be distinguished. Its height is 13 feet. Five small P'ao-t'ais, ranged along the ridge to the east, are manifestly very recent. This is shown also by their vertically set bricks, which are of the same size as those used for the repair of the tower. On a rocky terrace some 30 feet below T. XLII. d rises a rectangular enclosure (Fig. 216; Pl. 14). Its size and its massive walls of stamped clay, 8 feet thick, strongly reminded me of the small fort T. XIV, found at the site of the ancient 'Jade Gate'.[17] The interior measures 58 feet from east to west and 46 feet across. Its walls are 18 feet high, excluding a parapet built of bricks measuring 12 × 8 × 4 inches and probably of later date. A great portion of the west wall has fallen, and to the same cause is due the widening of the gateway on the south.

Likely position of a 'barrier' station.

No remains of any kind survived within the enclosure. But its position in very close proximity to the Limes and outside the cultivated ground, as well as the massiveness of the walls and their present condition, distinctly point to antiquity. As the plan shows, the route leading from the village of Shih-êrh-tun towards T. XLI. o and thence connecting with Obrucheff's alternative route to Hāmi passes immediately below the small fort, and so does the route which leads to the latter place via Ch'iao-wan-ch'êng. Considering that the ground occupied by the village must at all times have been the last point of cultivation touched by these two routes before entering the desert region of the Pei-shan, it seems very probable that the position guarded by the fort was occupied as a 'barrier' or Gate station, *kuan*, ever since the Limes was constructed. That it lay at some distance from the points where the two routes above mentioned actually passed outside the 'wall' is a circumstance for which an exact parallel is found in the position of the ancient *Yü-mên kuan* west of Tun-huang.[18]

Designation of *Hsiao-fang-p'an*.

The assumption here put forward as to the original character of the site receives support from two local observations. As already stated elsewhere,[19] there is the significant fact of the little fort bearing locally the designation of *Hsiao-fang-p'an* 小防盤, 'the small protective camp', the same which is applied to the exactly similar fort at the ancient Yü-mên or Jade Gate. In the second place, in view of what I have repeatedly pointed out as regards the continuity of local worship at all points where routes pass outside the line of the Limes,[20] some weight may be claimed

[16] See above, p. 369.
[17] See *Serindia*, ii. pp. 683 sq.
[18] Cf. *ibid.*, ii. p. 691.
[19] Cf. *ibid.*, iii. p. 1137.
[20] See above, pp. 360, 380; *Serindia*, ii. pp. 602, 696; iii. 1094 sq.

for the fact that just where the two routes unite to pass between the fort and the little stream separating the site from the lands of Shih-êrh-tun, there stands, as seen in the map, a small shrine, such as is always to be found at points marking an ancient 'Gate station'.

Names of *Shih-êrh-tun* and *Shih-tun*.

In the continued use of the route which leads past Shih-êrh-tun eastwards to Hua-hai-tzŭ or Ying-p'an (Map No. 40. D. 5) and thence to Su-chou we may with some probability recognize the reason to which the towers at Shih-êrh-tun itself and those found east of it as far as T. XLII. j owe their later repairs. They would naturally be used in times of trouble in order to safeguard an exposed route between two outlying settlements. But the very maintenance of these watch-towers down to recent times also helps to explain the designations borne by *Shih-êrh-tun* 十二墩 and by the small hamlet of *Shih-tun* 十墩 about five miles farther east.[21]

Hydrographical observations.

Before carrying farther our survey of the line of the Limes, it will be convenient to record here certain hydrographical observations, made first in the vicinity of Shih-êrh-tun and then confirmed by others eastwards. They have an important bearing on the question of the Su-lo-ho drainage and present a distinct geographical interest. I had already observed, on the occasion of my reconnaissance to this ground from Yü-mên-hsien on September 21, 1907, that the lively little stream, passing Shih-êrh-tun on the north side and farther on expanding in a marshy bed towards Shih-tun, was flowing in an easterly direction, as duly shown in the map of *Serindia* (No. 85. A, B. 2). It was obvious that this streamlet, locally known as Hsi-wan-ho, could, like the canals which irrigate the lands of Shih-êrh-tun and Fang-pa-ying-tzŭ, a hamlet adjacent on the east, receive its water only from the Su-lo-ho.

Direction of Hsi-wan-ho streamlet.

But the details of this connexion could not be ascertained on that rapid visit. It therefore remained an open question what becomes of this drainage, which takes an easterly course and thus flows in a direction exactly opposite to that which the Su-lo-ho follows from near its great bend. The problem deserved all the more attention because Professor Futterer's text and map indicated a *westerly* course for the stream passing Shih-êrh-tun and Shih-tun;[22] and also because of the extensive lake or marsh bed which is shown by the Chinese 'Wu-ch'ang map' to the north of the Su-lo-ho bend as well as to the east of it, and which on the strength of it has found its way into recent European cartography.[23]

Irrigation brought from Su-lo-ho.

A survey reconnaissance made by Lāl Singh to the south of Shih-êrh-tun (Map No. 40. C. 5) ascertained that its irrigation and that of Fa-pa-ying-tzŭ is brought by canals from the Su-lo-ho, which pass through the northernmost extension of the Yü-mên-hsien oasis and at their ends unite with the Hsi-wan-ho. This streamlet itself is fed by springs rising in a bed which comes from the south-west and undoubtedly represents an old flood channel of the Su-lo-ho. To the south of T. XLII. a this bed is joined from the west by a marshy Nullah, which in 1907 was followed for over two miles to a point where it turns south in the direction of the Su-lo-ho.[24] The whole of this

[21] *Shih-êrh-tun* means 'Tower XII', *Shih-tun* 'Tower X'. The popular explanation given to me in 1907 was that Shih-êrh-tun was 'twelve towers', i. e. 120 *li*, distant from Hua-hai-tzŭ, and Shih-tun 'ten towers', i. e. 100 *li*, from the same, a watch-tower or usually a much-reduced representation of one being found on all modern Chinese highways of Kan-su and Hsin-chiang to mark a distance supposed to be 10 *li*.

The actual marching distance between Hua-hai-tzŭ and Shih-êrh-tun along the regular route, however, is fully 40 miles. This, taking the 2 miles as the usual equivalent of 10 *li* in these provinces, would bring Shih-êrh-tun more correctly to the position of Tower X.

It appears to me, therefore, more likely that those designations were taken from such watch-towers, whether ancient or modern, as are actually seen close to the route. Counting from T. XLII. d, seven of these were met by us on the route up to Camp 126, and three more may well stand along the track from there to Ying-p'an which was not followed on our march.

[22] See Futterer, *Wüste Gobi*, p. 26.

[23] Cf. *ibid.*, p. 24; also Sheet A. 1 of the maps illustrating Count Széchenyi's expedition (1877–80); the *Tibet* map of the R. Geographical Society.

[24] Details of the ground are shown more clearly in *Serindia*, v. Map No. 85. A. 2.

ground, salt-encrusted but supporting abundant reed-beds, bore then the appearance of a marshy basin liable to inundation by flood channels taking off from the right bank of the river higher up and but recently dried up. This observation helps on the one hand to throw light on the fact referred to above that the seventeenth-century Chinese map shows a marsh or lake in this area. On the other it also explains clearly why the line of the Limes from Shih-êrh-tun was taken along the foot of the Sai glacis north-westwards to T. XLI. o, instead of being carried straight across to the right bank of the river.[25]

Interest of river bifurcation.

The special geographical interest presented by the easterly course of the Hsi-wan-ho lies in the fact that it carries water gathered from the Su-lo-ho into ground hydrographically quite distinct from the lower valley of the river. We have here accordingly a very striking case of a river's bifurcation hundreds of miles above its proper terminal basin. Below Shih-êrh-tun the Hsi-wan-ho, flowing eastwards, winds as a small limpid stream along the grass and scrub covered bottom of a well-marked depression which divides the foot of the gravel glacis of the Pei-shan from a bare peneplain forming here the last outlier of the Nan-shan. Where we measured the volume of the Hsi-wan-ho on April 24th just above Shih-tun, it still carried about 50 cubic feet of water per second after supplying irrigation to the fields of the small village. Beyond this a low rocky ridge, which crops out for some distance at the foot of the peneplain on the south, narrows the grassy depression. But some five miles farther on this widens out again into a broad basin with abundant vegetation. Judging from our survey of 1907, it seems possible that this basin is also reached by the drainage that a large but usually dry flood-bed of the Su-lo-ho and the canals watering the north-eastern extremity of the Yü-mên-hsien oasis carry in this direction, as may be seen from Map No. 40. C. 5. At this point a number of abandoned farms could be sighted in the distance to the south of our route, evidence that cultivation prevailed until the time of the Tungan devastations. On the south this basin was seen to be edged round by detached rocky ridges cropping out from the slopes of the utterly barren peneplain. The basin could evidently receive water only from the Su-lo-ho, besides occasional drainage descending the bare slopes from the south; it sloped gently but unmistakably down from the south-west to the north-east.

Drainage into basin of Hua-hai-tzŭ.

It was in this direction that the lively stream was flowing to which reference was made above. We reached it after leaving the line of the Limes at the tower T. XLII. j in order to gain the main route leading to Ying-p'an (Map No. 40. D. 5). It carried about 60 cubic feet of water per second where we crossed it and beyond spread out in a marshy bed. The survey subsequently carried out along the line of the Limes north and north-east of Camp 126 kept us on a gravel plateau overlooking the previously mentioned basin from the east. It did not allow us directly to trace the continuation of its drainage into a wide depression which was found to extend to the north of that plateau and of the cultivated area of Hua-hai-tzŭ 花海子. But when I sent Lāl Singh on April 26th from the latter place northward into this depression, in order to search for the line that the Limes is likely to have followed there, he came upon the narrow terminal beds of a stream coming from the west-north-west. One of these beds still carried a sluggish flow of water. This observation was verified by myself on the next day: proceeding for about three miles to the ENE. of the Limes tower T. XLIII. l I found the shallow terminal lagoons formed by this stream amidst tamarisk-cones and low dunes.

[25] Judging from the route maps illustrating Messrs. Grishmailo and Potanin's travels, these Russian explorers appear to have marched from Shih-êrh-tun to the Su-lo-ho by a route keeping north of this marshy basin and approximately corresponding to the line followed by the Limes. Both maps mark marshes to the south of the route indicated.

Of M. Potanin it is certain that he travelled in the month of August, when much of this ground is likely to be still inundated from the summer floods; see Futterer, *Wüste Gobi*, p. 30.

Considering the configuration of the ground, as shown by Map No. 40. D. 4. 5, I believe there can be little doubt that these beds of a small stream dying away in the wide drainageless depression between the alluvial fan of Hua-hai-tzŭ and the gravel glacis of the Pei-shan mark the termination of the waters collected in the Hsi-wan-ho and the adjacent marshes. The statement I had heard from the villagers of Shih-êrh-tun about their stream flowing to the vicinity of Ying-p'an thus found confirmation. That the oasis of Ying-p'an or Hua-hai-tzŭ situated at the lower end of the alluvial fan of the Ch'ih-chin river lies at least 600 feet, if not more, below the level occupied by Shih-êrh-tun and the bend of the Su-lo-ho west of it is quite certain.[26]

Water of Su-lo-ho drains into Hua-hai-tzŭ basin.

It is hence easy to understand that the depression lying to the north of Hua-hai-tzŭ, through the 'cutting back' of the drainage bed which leads into it from the west, should have captured whatever water from the Su-lo-ho reaches the ground on the river's right bank between the Yü-mên-hsien oasis and the foot of the Pei-shan, whether by canals, temporary flood channels, or subterranean drainage. The amount of drainage thus diverted from the Su-lo-ho is small at the present day and may never have been large. Yet this bifurcation of the Su-lo-ho may claim special geographical interest in view of the fact that this secondary terminal basin in the east is separated by more than 260 miles from the main basin in the west beyond the end of the Tun-huang Limes.

Marshes of Wu-ch'ang map.

This bifurcation may also help to explain to some extent the representation in the Wu-ch'ang map of a succession of lake or marsh beds stretching to the east of the Su-lo-ho bend and connected by narrow necks;[27] for the marshy belts still found both to the west and the east of Shih-êrh-tun, the basin between T. XLII. i, j and Camp 126, and the wide depression north of Ying-p'an may all at one time have received a good deal more water than they do now. But that they could not have barred traffic either during Han times or since is sufficiently indicated by the line which the ancient Limes follows along this ground, and by the survival of its remains to this day, as described in the next section.

LIST OF OBJECTS FOUND AT CH'IAO-WAN-CH'ÊNG

Chiao. 01. Fr. of pottery roof tile; antefix moulded as grotesque mask with bulging spherical eyes, broad nose, very large mouth looped up at corners from which project tusks with teeth between. Beard divided into three locks growing from lower lip and carried up sides of face. Hair in bulging masses. Convex body of tile broken away. Coarse, grey. Diam. 5". Pl. L.

Chiao. 02. Fr. of pottery roof tile, similar to Chiao. 03 (Pl. L), broken at R. p. side, but details clearer; eyebrows and longitudinal wrinkles in forehead. Grey. 4¼" × 4".

Chiao. 03. Fr. of pottery roof tile. Antefix in form of grotesque mask with broad flat nose, slanting eyes; thick-lipped broad grinning mouth showing small teeth; prominent forehead from which straight hair is drawn back. Encircled by 12 pearls. Part of convex body of tile remains. Buff. Well preserved. Diam. 5". Tail 2". Pl. L.

Chiao. 05. Fr. of rim of large pottery vessel; wheel-made, fine grey. Rim, turning out at wide angle, thickens towards edge. Three rivet holes pierced through wall near broken edge. H. 3¼", chord of arc of rim 7½", width of rim 1".

Chiao. 06–7. Two clay tiles or hollow bricks, from architectural string made in mould, with relief orn. on face. *06* broken at ends and encrusted with sand; *07* perhaps complete. Orn. shows large open flower (peony) in profile in centre, with main stem on lower plane passing horizontally behind it, and four curving leaves, veined and ribbed, springing from it and filling corners. Growth, R. to L.

Flower, in profile, united to main stem by small stem curving below, has four curving outspread petals, calyx, high stamens and seed-vessel. Row of bead orn. along lower edge, and two channels above. Across each end at back, marks of two projecting bars (broken away) apparently for attachment to wall. Cf. E. G. 09. Size complete 11¾" × 6¼", thickness ⅞". Pl. L.

Chiao. 08–9. Two clay tiles or hollow bricks, moulded in relief like the preceding, but of different pattern. In centre is large circular formal flower (sunflower ?), with outer row of fifteen rounded deeply grooved petals, and inner disk of ray-like petals or stamens round raised elliptical centre punched with depressions. Leaves come at corner as in Chiao. 06–7, and undulating stem passes

[26] According to Professor Futterer's observations the right bank of the Su-lo-ho at a point close to the bend, the village of Shih-tun, and his camp in the Ying-p'an oasis are situated at elevations of 1,410, 1,420 and 1,310 metres, respectively.

[27] Cf. Futterer, *Wüste Gobi*, p. 24; above, p. 386.

behind flower. Row of bead orn. by each long edge, and projecting bars at back across each end, as also in the preceding. *08* broken at edges, *09* perhaps complete. Cf. 06–7. Size complete 11¾" × 9¾", thickness 1". Pl. L.

Chiao. 010. Fr. of clay tile or hollow brick, moulded in relief like the preceding. One end only, broken in two; shows part of curving stem, leaves, and narrow-petalled flower. Raised moulding along each long edge, and return piece of clay along end. 6" (incomplete) × 7¾" × (return end) 2¾".

Section III.—HUA-HAI-TZŬ AND ITS LIMES REMAINS

Limes line east of Shih-êrh-tun.

Having already given an account of the physical features of the ground over which our march of April 24th east of Shih-êrh-tun took us, I may now describe the remains of the Limes traced on that march. Within less than half a mile to the east of T. XLII. d the line of the wall was lost on low ground covered with abundant scrub and reeds. We followed its direction towards T. XLII. e, a tower well in sight from Shih-êrh-tun, and came again upon the wall extending in a straight line marked by reed fascines cropping out on its sides, as soon as we struck gravel soil at the foot of a low ridge of detritus. Near the tower T. XLII. e, which stood at a distance of about two miles, the *agger* still rose to a height of about 6 feet. From here onwards it remained clearly traceable for close on twelve miles eastwards, except for short breaks where the foot of the gravel Sai gave way to clayey patches with vegetation. For the whole of this distance, apparently, the wall had been built of alternate layers of reed fascines and stamped clay, after the fashion observed along the Tun-huang Limes. It may safely be concluded from this use of reed fascines that the depression which stretches to the south of the line and is drained by the Hsi-wan-ho presented much the same marshy appearance in Han times as at present.

Watch-towers restored.

The ruined watch-stations found along this stretch of the Limes wall, T. XLII. e–j, showed much similarity in construction and had evidently been occupied and repaired down to later times. This latter circumstance is easily accounted for by the fact that the route leading to Hua-hai-tzŭ and Su-chou here passes parallel to the line and within a mile or so to the south of it. The ancient towers could, it is evident, be conveniently employed for the protection of this route and of the scattered settlements to the south, and at one time they all seem to have been enlarged into small shelter-posts on much the same plan.

Walled enclosures added.

The towers are built of stamped clay and measure to-day from 22 to 28 feet square at the base. Their height varies between 18 and 25 feet, including brick parapets which manifestly are of later date. The towers now occupy the north-western or north-eastern corner of walled enclosures, as seen in Fig. 214 representing T. XLII. f. These enclosures, also built of stamped clay but of less solid construction, have the appearance of later additions and form squares of 60 to 62 feet inside the walls.[1] These walls, 3½ to 4 feet in thickness, have been breached by wind-erosion usually on the west face, an observation which suggests the prevalence here of winds blowing from the Su-lo-ho valley down into the depression of Hua-hai-tzŭ.

Finds at T. XLII. e, i, j.

No large accumulation of refuse was found within any of the enclosures. But the presence of porcelain fragments by the side of potsherds of Han type sufficed to prove that the posts had been occupied down to later times. Whether the ornamented shoe with string sole, T. XLII. e. 01 (Pl. XLVI), is of any antiquity is doubtful. On the other hand, we may recognize a relic of the period when the Han Limes was regularly guarded along its whole length, in two stacks of half-petrified reed fascines, 4 to 5 feet high, which I discovered about 30 yards to the south-east of T. XLII. i on a slight swelling of detritus-covered ground. These stacks, like those found near watch-towers of the Limes west of Tun-huang,[2] served the purpose of providing material for signal fires ready

[1] For the plans of T. XLII. e, f, i, see Pl. 14, 16.

[2] Cf. *Serindia*, ii. p. 754; above, p. 384.

to hand. I may also mention that near this post and the next one eastwards, T. XLII. j, short stretches of an old canal could be traced, evidently connected with the Hsi-wan-ho.

'Tati' with Han potsherds.

Beyond T. XLII. j the line marking the wall could be made out for about another mile, after which it disappeared amongst tamarisk-cones in the depression eastwards. Here we had to leave it in order to gain the well which serves as the usual halting-place on the caravan route to Ying-p'an. Striking to the south-east from T. XLII. j, we passed, at a distance of a mile, a small 'Tati' covered with potsherds of Han type; this may well mark the position of a settlement extant during the early occupation of the Limes. Another five miles across the basin previously referred to brought us to the bare slope of a conspicuous rocky ridge. It is one of those which, as mentioned before, crop out along the northern edge of the big peneplain dividing the valleys of the Su-lo-ho and Ch'ih-chin rivers.[3]

Watch-tower behind Limes line.

A knoll near the north-western end of this ridge, rising about 200 feet above the brackish well where our Camp 126 stood, was found to carry the ruin of a massive tower of conical shape, which, though standing away from the Limes, had a distinctly ancient look. It was built of layers of clay reinforced with large trunks of wild poplar and measured about 33 feet square at the base. Its top, at a height of some 12 feet, supported a small look-out platform constructed of layers of reed fascines. This tower commands a very extensive view to the north and north-west, whereas the view from the watch-posts of the Limes which we traced on the following day across the gravel plateau beyond the ridge, is masked in those directions by rising ground. It is therefore likely enough that the tower that crowns this knoll dates from ancient times and enabled the defenders to keep a more efficient watch across the border line.

Limes wall traced across plateau.

On the morning of April 25th I sent off the baggage to Ying-p'an by the caravan track and set out myself with Lāl Singh and the few available mounted men northward in search of the line of the Limes. It proved an interesting day's work, disclosing remains so abundant that two more days were occupied in clearing and examining these. This work was carried out from a base established at the oasis and with the help of Chinese labour secured there. Having skirted the western foot of the rocky ridge and then covered about two and a half miles to the north, we struck the line of the wall stretching straight across a wide plateau from west-north-west to east-south-east.[4] The character of the ground, either bare clay or gravel, had helped to preserve the wall in a better state than we had found it since leaving An-hsi.

Construction of wall.

In many places, indeed, wind-erosion had reduced it to the condition of a low gravel-covered embankment. But there remained numerous segments where it still rose practically intact to a height of 6 or 7 feet and clearly showed its construction of alternate layers of stamped clay and fascines, each from 8 to 10 inches in thickness. The fascines along this section of the Limes were composed mainly of tamarisk branches, easily gathered, no doubt, in the depression northward, where, as the map shows, tamarisk growth still abounds at the present day. The clay layers were extremely hard, though the water for compacting them must have been carried from a considerable distance. The fact that the wall, in the well-preserved segments, was about 5 feet wide at the top makes it appear likely that along this portion of the line the original thickness of the wall conformed to the regular measurement found on the Tun-huang Limes, viz. 8 feet at the base.[5]

[3] There appears to me some reason to doubt whether the aneroid reading which gave an elevation of 5,420 feet for Camp 120 can be safely accepted. My recollection of the ground towards Shih-érh-tun and Ying-p'an suggests a lesser height. Professor Futterer's reading for the same point was 1,350 metres (4,429 feet). In Map No. 40. D. 5 the clinometrical heights for several points observed from Camp 126 are rightly marked with a query.

[4] In Map No. 40. D. 5 the line of towers and wall, from T. XLIII. a to T. XLIII. f, has been shown by a draughtsman's error in the direction from NW. to SE.

[5] See *Serindia*, ii. p. 736.

The fair state of the remains of the wall at this point seemed to indicate the prevalence of climatic conditions more favourable to the preservation of ancient objects than those met with on the right bank of the Su-lo-ho. The hope raised by this circumstance, that I should here find relics of the men who had kept watch on the Limes, was not disappointed. The first watch-tower traced, T. XLIII. a, had, indeed, decayed into a mere gravel-covered mound of small dimensions. But around it ancient potsherds abounded, and from a refuse heap discovered under a thin layer of gravel, some 40 yards to the south, we recovered three wooden slips inscribed in Chinese 'grass' script, besides several fragments of blank slips and the miscellaneous small objects in wood, wool, &c., described in the List below. They include a wooden seal-case, T. XLIII. a. 010, of a type represented on the Tun-huang Limes, and pieces of a strongly woven rug, dyed green, T. XLIII. a. 06. Close to the mound a *Wu-chu* coin was picked up on the surface. [Two of the Chinese records refer to convicts exiled to the frontier for military service. T. XLIII. a. 013 also mentions the 'signal post' of *Chên-chung* 椬中, the name of which recurs in T. XLIV. b. 2. 024.] Relics at T. XLIII. a.

After following the line for half a mile to the south-east we came upon unmistakable remains of a potter's kiln. The ground was reddened by fire and covered with slag and potsherds. The piece, T. XLIII. a. i. 01–2 (Pl. XLVIII), from the lip and side of a large vessel is a good specimen of this local ware. After proceeding another half-mile we came to the tower T. XLIII. b (Fig. 223), still rising to about 11 feet. It was solidly built of bricks, 15 by 8 inches in size and 5 inches thick, and originally measured 16 feet square at the base. This had been subsequently enlarged to 20 feet, as was clearly seen through a gap where the outer brick casing had fallen on the east side. Here the white plastering of the original structure was still visible. The outer masonry in bricks of the same size had its courses separated by layers of reeds. The top of the tower had once probably carried a small guard-room, but nothing was found there. Among the pottery debris recovered close by the fragments one or more bowls in a fine glazed frit, T. XLIII. b. 01–7, deserve notice. Watch tower T. XLIII. b.

The next two ruined posts, T. XLIII. c, d, were marked only by mounds, completely decayed, with ancient pottery debris around them. At the second I was able to ascertain that the bricks of the tower which once stood here were of the same size as at T. XLIII. b, and this was observed also at other ruins of this section of the Limes. A curious feature at T. XLIII. d was a row of eight very low mounds, just distinguishable over the gravel flat, stretching to the south and separated from each other by distances of 30 to 50 yards. At each of these little mounds, layers of brushwood, slag, or clay reddened by fire could be traced under the thin cover of gravel which the winds had blown over them. Is it possible that these remains mark the position of hutments of an ancient camp? Decayed posts T. XLIII. c, d.

About a mile farther on, the site of an ancient watch-station, T. XLIII. e, was indicated by a mound, about 15 feet high and 22 yards across, composed of layers of clay and brushwood. Besides numerous potsherds of Han type lying about, there was found here a curious hollow pottery bar, T. XLIII. e. 01, made of very hard dark grey clay and described in the List below; its use still remains to be determined. At T. XLIII. f, less than a mile farther on, the line of the wall was seen to take a slight turn due east. Here, too, only pottery debris survived to mark the position of a post. For a distance of nearly a mile from this point the wall could be followed with ease over the bare gravel. Then it passed into an area of wind-eroded clay with low scattered tamarisk-cones. Here its line remained traceable for a short distance only, in the shape of a wind-eroded clay bank, 3 or 4 feet high. This obviously was a 'witness', due to the fact that the soil which the *agger* had once covered had resisted wind-erosion longer than the adjoining unprotected ground. Remains of posts T. XLIII. e, f.

Beyond this the line of the wall was lost completely, until, at a distance of about three miles from T. XLIII. f and on the northern edge of a belt of tamarisk-cones, we came upon a low mound Finds at T. XLIII. g.

bearing on its top the remains of a brick-built tower, T. XLIII. g, exposed to a height of about 5 feet. Cinders and reddened clay around it suggested that fire had been applied to some structure that once adjoined it. At some later period a herdsmen's shelter had been built into the east side of the mound, with rough walls of tamarisk branches and brushwood easily distinguished from the rest. Refuse layers were found on the west and south slopes of the mound, and the examination of them yielded four Chinese inscribed wooden slips, besides a number of miscellaneous small objects described in the List. Among these may be specially mentioned a bronze arrow-head, T. XLIII. g. 015, of the same type as is common at Lou-lan sites and along the Tun-huang Limes; another arrow-head, 014 (Pl. XLVII), with barbs and hollow sides, resembling Lal S. 015 (Pl. XXIII); the fragment of a bronze mirror, 04. A broken *Wu-chu* coin was also picked up here.

Walled-up hillock T. XLIII. h.

We had given up hope of tracing the line farther to the east amidst the close-set tamarisk-cones, when our sharp-eyed Mongol, having reconnoitred ahead, led us through them to a small gravel-covered hillock, T. XLIII. h, about 30 feet high. On its eastern slope, about half-way up, we found the foundations of a wall 5 feet thick, running for about 50 feet. It was solidly constructed of tight fascines of brushwood, laid crosswise in alternate strata and secured by stout branches passing through them vertically. The diameter of the natural hillock, which by means of this wall or scarp appears to have been turned into a kind of tower, was approximately 50 feet.* The top seemed to have been transformed into a look-out platform by the same means; but apart from a fragmentary coin, apparently an issue of Wang Mang, nothing was found here. Refuse, however, was soon traced under a thin cover of gravel below the wall on the east, and here a first rapid search brought to light four Chinese documents on wood, including a well-preserved tablet inscribed in double columns on both sides.

Move to Hua-hai-tzŭ oasis.

There was no time that day to clear the refuse deposits at this spot, nor to trace the line of the wall, which fortunately soon emerged again on open gravelly ground, farther than to the tower T. XLIII. j. We were then obliged to turn to the south in order to reach before nightfall the oasis of Hua-hai-tzŭ or Ying-p'an, to which our camp had been sent ahead. As we made our way to it, across a zone of soft loess soil dotted with numerous tamarisk-cones, we passed the small outlying colony of Shuang-ch'üan-tzŭ irrigated from springs. Before, however, recording such observations concerning the main oasis as a brief stay permitted me to make, it will be convenient to complete the account of our exploration of the line of the Limes to the north of it.

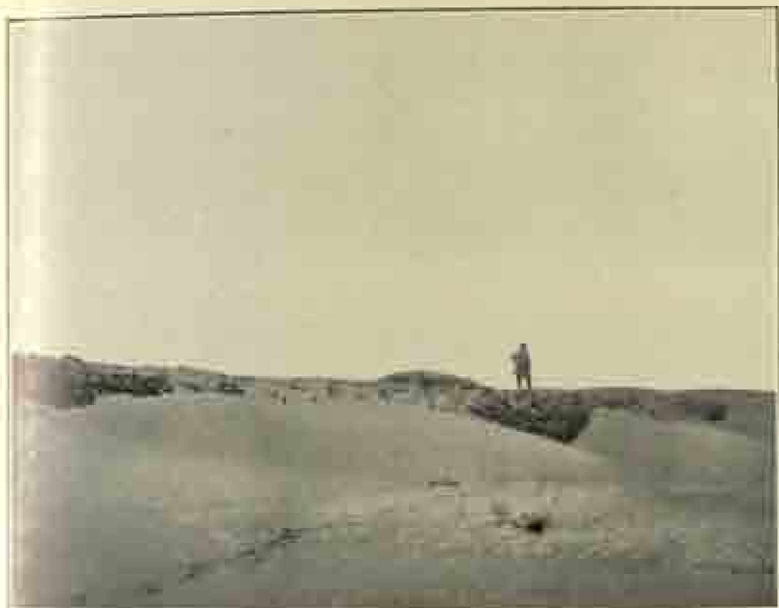
Work effected from *Hua-hai-tzŭ*.

The two days, April 26th and 27th, were used to full advantage, our camp meanwhile remaining within the cultivated area. The resources of the petty Chinese official established in the small walled town or *p'u-tzŭ* which forms the centre of the oasis and is known by the significant designation of *Ying-p'an*, 'the military encampment' 營盤, were limited; but they sufficed to provide me with a small contingent of labourers. Mounted on big hardy donkeys, such as fortunately abound at all the oases of this region, they were taken out to the line of the Limes and helped us to clear the remains with thoroughness. At the same time Lāl Singh was enabled to extend survey reconnaissances into the desert both to the north-east and south.

Finds among refuse at T. XLIII. h.

The excavation of the refuse layers at T. XLIII. h was rewarded by the discovery of sixteen more Chinese records on wood and by a number of miscellaneous finds, including wooden implements and coarse fabrics, as described in the List. [Two of these documents, T. XLIII. h. 020, 024, bear dates corresponding to the years 39 B.C. and A.D. 13, respectively. T. XLIII. 016 quotes a law concerning military employment. T. XLIII. 018 mentions the localities of *Shou-hsiang* 受降 and *Wan-nien* 萬年, both of which are named in previously found documents from the

* For a watch-station on a hillock similarly walled up with fascines, on the ancient Han route leading along the Konche-daryā, see below, Chap. XXI. sec. iii.



218. LINE OF LIMES AGGER, BUILT OF FAGGOTS, NORTH-EAST OF HUA-HAI-TZŬ.



219. LIMES LINE TRACED AMIDST TAMARISK-CONES NORTH-EAST OF HUA-HAI-TZŬ.
(See p. 398.)



220. LIMES WALL BUILT WITH BRUSHWOOD FASCINES, EAST OF TOWER T. XLIII. i, NORTH OF HUA-HAI-TZŬ.



221. WATCH-STATION T. XLIII. i, ON LIMES LINE NORTH OF HUA-HAI-TZŬ.



222. WATCH-TOWER T. XLIV. b, EAST OF HUA-HAI-TZŬ.



223. WATCH-TOWER T. XLIII. b, ON LIMES LINE WEST OF HUA-HAI-TZŬ.

Tun-huang Limes (Chavannes, *Doc.*, Nos. 415, 485). In 023 the commandant of a 'signal post' (*sui*) is referred to as a native of the canton of *Fu-ch'ang* 富昌 of *Yü-mên*. 019 furnishes an inventory of various textiles and articles of clothing; 029 and 030 are fragmentary private letters.]

The well-made string shoe, T. XLIII. h. 04; the wooden peg, 013, with a roughly drawn grotesque face, and the iron hoe-blade, 012, have their exact counterparts among objects from Limes posts west of Tun-huang, occupied during Han times. In view of the chronological indication afforded by these and by the coin previously mentioned, the find of a torn piece of paper, 06, uninscribed, has its special interest. The distance from the tower T. XLIII. g in the west to T. XLIII. i, the next tower eastwards, proved little more than a mile. It has occurred to me that the interposition of T. XLIII. h so close to each of these posts might perhaps best be explained by the supposition that its remains mark the site not of an ordinary watch-tower but of a *point d'appui* or sectional head-quarters, such as T. VI. b and T. XV. a on the Tun-huang Limes.[7] The comparatively large number of documents found here would well agree with such an assumption.

Relics found at T. XLIII. i.

Neither here nor near T. XLIII. g was it possible to trace the actual Limes wall. But eastwards the belt of tamarisk-cones receded, and close to the point where the line of the wall reappears on gravel soil amid a scanty growth of scrub, we came upon the much-decayed remains of a brick-built tower, T. XLIII. i, occupying a small natural knoll to the south of the wall. It was interesting to see this knoll now completely overtopped by a tamarisk-cone close by, fully 30 feet high, which must have grown up since the watch-post was here built.[8] From a refuse heap on the slope of the hillock nine Chinese records on wood were recovered, including a rectangular cover-tablet [with the name of the addressee] and a seal-case. Among the miscellaneous objects found here may be mentioned the piece of a wooden saddle-tree, T. XLIII. i. 02; the fragment of an iron implement, 07 (Pl. XLVII), wedge-shaped, of uncertain use, and a small quantity of oats, of which 08 is a specimen.

Limes wall traced to T. XLIII. j.

From here onwards the wall was found in very fair preservation, running eastwards, with an average height of 5 to 6 feet, but rising in places even a couple of feet higher (Fig. 220). At a point about one mile distant from the post last described and a little to the south of the wall, a mound was found covered with the debris of a small brick-built structure, T. XLIII. j. A room, of which only the east wall remained clearly traceable, had its floor covered with refuse. The excavation of this yielded no less than twenty-four Chinese records on wood, including not only fragments of 'slips', but also a complete trilateral piece of the size and shape which, as is shown by corresponding finds on the Tun-huang Limes, was used for literary productions.[9] [The trilateral piece, T. XLIII. j. 014, has proved to contain the beginning of the 14th paragraph of the *Chi chiu chang* 急就章, a famous lexicographical text, the popularity of which during the later Han period is attested also by a number of fragments recovered at different points of the Tun-huang Limes on my second expedition.[10] T. XLIII. j. 013 contains a writing exercise in which a date corresponding to the year 40 B.C. is copied. A private letter from an exile is found in 05–6. Numerous pieces, 07–12, 015–21, &c., seem to belong to an astrological calendar.]

Miscell. finds at T. XLIII. j.

Among the few miscellaneous finds are the wooden heel-piece of a shoe last, 02 (Pl. XLVI) and a piece of well-made basket-work, 04 (Pl. XLVI). But more interesting is a small carefully carved wooden peg, 01 (Pl. XLVII), supporting at its upper end a carved head with the details of the face neatly cut in or painted in black. The little object is remarkable on account of the resemblance it shows, as pointed out by Mr. Andrews, in the treatment of the coiffure to certain Han

[7] See *Serindia*, ii. pp. 644, 698 sqq.

[8] For a corresponding observation made at the ancient fortified post south of the Endere site, cf. *Serindia*, i. pp. 283 sqq.

[9] Cf. Chavannes, *Documents*, pp. 6 sqq., Pl. I, II; *Serindia*, ii. p. 763, n. 92.

[10] Cf. Chavannes, *Documents*, pp. 1 sqq.; *Serindia*, ii. p. 763.

tomb sculptures and generally to figures which M. Chavannes in his great work on ancient Chinese sculptures reproduces as representations of protecting genii. If Mr. Andrews' comparison holds good we may find in this little carving the true explanation of the wooden stakes, like tent-pegs, painted with grotesque faces, of which numerous specimens have been brought to light at Limes stations both on my second and third journeys.[11]

Finds at tower T. XLIII. k

T. XLIII. k, the next post to the east, was only half a mile distant. The tower, apparently built of stamped clay with intervening reed layers, had decayed into a low mound. But deposits of refuse in two places, one 10 yards to the south and another farther off to the south-west, yielded plentiful relics of ancient occupation. Of Chinese records on wood, some twenty slips were recovered, many broken, but others complete. [One among them, T. XLIII. k. 032, contains the official formula regularly used under the Han to introduce an imperial decree, as found also in Chavannes, *Doc.*, No. 140, of 58 or 56 B.C. T. XLIII. 031 is a receipt bearing a date corresponding to November 6th of 21 B.C. The date shown by the incomplete slip, T. XLIII. 029, may correspond to 86 B.C., 48 B.C., or A.D. 89. The 'signal post' (or company?) *Tsêng-hu* 憎 胡 is mentioned in T. XLIII. 027, and a record relating to the postal service preserved in T. XLIII. 037.] Among miscellaneous objects found here are several fragments of lacquered wooden bowls, T. XLIII. k. 04–8, 026 (Pl. XLVII), and spatula-shaped wooden pieces, 010–12, 014, 023 (Pl. XLVI), which may possibly have served the same purpose as modern Chinese eating-sticks.

Construction of tower T. XLIII. l.

From this point the wall changed its direction to the east-north-east; it was for the greater part in a state of fair preservation, and after running over slightly rising ground, brought us to the large conspicuous tower, T. XLIII. l (Fig. 221). This stands to a height of 24 feet and is of very solid construction. But closer inspection showed that though its core may go back to Han times, it had undergone additions and repairs down to comparatively late times. To this recent period must be also assigned the enclosure, 83 feet square, of which, as the plan (Pl. 15) shows, the tower now occupies the north-west corner. The original tower appears to have measured about 24 feet square at its foot. It is built of solid stamped clay, reinforced by a framework of big Toghrak beams and posts. To this has been added a massive revetment, built of stamped clay and brushwood layers, enlarging the tower to 35 feet at its base. This revetment, slanting inwards, has been carried to a height of 14 feet from the ground and leaves at its top a berm 3 feet wide around the original tower. On the top of the latter were found the remains of a small room built of bricks placed vertically and manifestly of late construction.

Enclosure of T. XLIII. l.

The enclosure above mentioned is formed by a stamped clay wall, 4 feet thick, which is best preserved on the south face, where it still stands to a height of 10 feet. It was moreover possible on that side to trace below it a foundation of brushwood fascines and timber. The west face has been completely eroded, and this, in conjunction with corresponding observations along the Ying-p'an section of the Limes, suggests that the strongest winds blow into this depression from the side of the Su-lo-ho valley. The position of the west wall was marked by solid accumulations of refuse, mainly reed-straw and dung, which had grown up against it within the enclosure. That most of this refuse, if not all, was deposited at a later period is proved by the remains of porcelain bowls and glazed hardware of which specimens are described in the List. As the note on T. XLIII. l. 06–9 (Pl. XLVIII) shows, the porcelain fragments close by resemble pieces picked up at T. XI on the Tun-huang Limes, which had been used as a roadside station till medieval times.[12] Relics of an earlier occupation of the post may lie hidden in layers of refuse lower down; but we did not succeed in discovering such deposits.

[11] Cf. *Serindia*, ii. p. 763 *sub* T. 002; iv. Pl. LII; also above, p. 393; below, pp. 416, 423, for T. XXII. d. 027, Pl. XLVII; T. XLIII. h. 013.

[12] Cf. *Serindia*, ii. p. 667.

The tower is known to the people of the oasis by the name of *T'ou-tun* 頭墩, 'the chief (or first) tower'. This application of a special name, like the continued occupation of the post down to later times, suggests that this section of the Limes, otherwise wholly deserted, is crossed somewhere in the vicinity by a track still occasionally frequented. And in fact, one of our men from Ying-p'an averred knowledge of a route leading northward to a place vaguely described as 'a hundred *li* off in the Pei-shan'. But for what purpose the local people visited it we did not succeed in eliciting.

Modern designation of tower T. XLIII. l.

The examination of the wall to the north-west of T. XLIII. l. and of the ground immediately beyond it revealed two curious features. At a distance of about 40 yards from the tower survived what looked like the reed fascine foundations of four small structures built within, and immediately against, the Limes wall. They measured about 13 feet from north to south and were separated from each other by intervals of about 18 feet. Could these mark the position of shelters erected at a point of the wall which seems to have required special watch and guard? This need may have been occasioned by the proximity of a succession of swelling gravel ridges, which here stretch from the north to within fifty yards or so of the wall and threatened its security. It is evident that they greatly facilitated unobserved attack. On the most westerly of these ridges were found two massive stacks of tamarisk brushwood, at points about 50 and 60 yards to the north-west of the previously mentioned position on the wall, as shown by the plan (Pl. 15). They measured 13 feet square at the base and still rose to over 7 feet in height. On a second ridge to the east and at about the same distance, we found a somewhat smaller stack of reeds, containing also horse-dung. It occurred to me, as I looked at these stacks, that by setting them on fire, the foreground would be well lit up at night and risks from sudden attack at this point much reduced. But, of course, the possibility of other explanations must be kept in view, e.g. the intention to use them for signal fires.

Remains near tower T. XLIII. l.

Stacks of brushwood and reeds.

Beyond T. XLIII. l the wall could be followed eastwards for half a mile. Then it became completely lost in a wide depression of soft eroded clay covered with closely packed tamarisk-cones. We continued our search over a distance of about three miles beyond the tower without coming upon traces of the wall. Nor had Lāl Singh been able to find any when he pushed an independent reconnaissance north-eastwards, to within sight of the Sai marking the foot of the Pei-shan. This and my previous experience of the very deceptive nature of such ground decided me to seek a fresh base to the east from which we might endeavour to locate the continuation of the line of the Limes. Practical considerations as regards water, doubly important now with the advance of the season, and the necessity of husbanding time in our move towards Su-chou and the Etsin-gol, indicated as a suitable place for this purpose the next halting-place with a well on the route to Su-chou. Before, however, recording the work carried out from that point, some remarks may be offered here concerning the geographical position of the Hua-hai-tzŭ basin and its bearing upon the line followed by the Han Limes.

Line of wall lost in depression to East.

The geographical interest of the Hua-hai-tzŭ basin, as it may conveniently be called from the designation of its single oasis, is due to the fact that it forms the terminal depression of a small but independent and typical drainageless area, intermediate between the far larger depressions in which the waters gathered by the Su-lo-ho and the Etsin-gol finally disappear. The northern limit of this area is marked by the southernmost hill range of the Pei-shan, the southern by that portion of the outermost Nan-shan which lying approximately between the 97th and 98th degrees of longitude separates the catchment area of the Su-lo-ho from that of the Pei-ta-ho or Su-chou river (Map No. 41. C, D. 1, 2).

Position of Hua-hai-tzŭ basin.

On the west and east the limits are not so sharply defined. Towards the Su-lo-ho the watershed is formed by an outlier of the Nan-shan which descends west of Ch'ih-chin-sê and flattens out in

the great gravel-covered peneplain already referred to above in connexion with the Hsi-wan-ho.[12] On the east the divide from the Su-chou river lies mainly on two similar saddle-like peneplains, one to the west of the Chia-yü-kuan defile (Map No. 43. A.1), and the other crossed by Lāl Singh's and my own routes from Ko-ta-ch'üan-tzŭ to Su-chou (Map No. 42. A, B. 4), but otherwise unsurveyed.

Transverse range dividing drainageless area.

A very peculiar feature of the drainageless area thus circumscribed is its division into two well-defined transverse portions by the rugged and comparatively high range which stretches from the close vicinity of Chia-yü-kuan with an approximate north-westerly bearing towards Ch'ih-chin-sê. General orographical considerations make me inclined to recognize in this range the westernmost extension of the Ala-shan system which winds round the northern confines of Kan-su. But without geological evidence this view can be put forward only as a conjecture. The range is cut through by the river of Ch'ih-chin and the Po-yang-ho, the head-waters of which in the Nan-shan we were able partially to survey in 1907.[14] There is reason to believe that the gorges in which they make their way through the range resemble in character those in which the rivers of Su-chou and Kan-chou break through the lower hill chain eastwards before uniting near Mao-mei to form the Etsin-gol.

The southern of the two previously mentioned portions of the Hua-hai-tzŭ drainage area for the most part consists of a wide open plateau resembling that which extends along the foot of the Nan-shan from Su-chou to Kan-chou, but distinctly more arid. The range stretching from Ch'ia-yü-kuan to Ch'ih-chin-sê (for which no general name was ascertainable by us) is utterly barren. What water is brought down by the streams from the outermost Nan-shan is soon lost at its foot. Judging from the observations I was able to make on my passage along this plateau in July and again in September, 1907, the few little oases found there depend for their irrigation mainly, if not solely, on subterranean drainage from the Nan-shan breaking out in springs.

Oasis dependent on irrigation from springs.

The water thus gathered on the plateau reappears in small streams on the line followed by the high road from Su-chou to Yü-mên-hsien. Yet it is practically certain that none of it reaches the depression to the north of the range except as subsoil moisture. Only at times of exceptional floods is it likely that the beds of the Ch'ih-chin river and the Po-yang-ho carry any surface flow to the northern foot of the range. Beyond this the Po-yang-ho course becomes altogether lost;[15] that of the Ch'ih-chin river ordinarily carries only such water as is derived from springs which rise in the bed some distance to the south-west of the Hua-hai-tzŭ oasis.[16] This water and that of other springs which issue at Hsiao-ch'üan-tzŭ farther north, at the edge of the gravel Sai, account for the cultivation of the small area, measuring about four miles from south to north and three miles across, comprised in the Hua-hai-tzŭ oasis. Thus the hydrographic conditions that here prevail closely resemble those of the small oases to be found below the gravel glacis of the K'un-lun to the east of Khotan.[17]

Cultivable area at Hua-hai-tzŭ small.

The ground at present capable of cultivation represents but a small portion of the area over which the Ch'ih-chin river at an earlier period has deposited fertile alluvium; for both to the north and south our surveys showed stretches of ground where the same soil of alluvial loess, unprotected by vegetation, is undergoing wind-erosion into regular Yārdangs. Indeed, on our march eastwards,

[12] See above, p. 387.

[14] See *Desert Cathay*, ii. pp. 268 sqq.

[15] The route sketch of M. Obrucheff, who actually descended into the Hua-hai-tzŭ basin by way of the Po-yang-ho, makes the river disappear at the northern foot of the range. No trace of its course was met with by us on our march from Hua-hai-tzŭ to Ko-ta-ch'üan-tzŭ.

[16] I regret that shortness of the available time did not allow us to determine the exact position of these springs, of which we learned from local information.

[17] Cf. *Ancient Khotan*, i. pp. 96, 115; *Serindia*, i. pp. 202 sqq.; iii. 1263, &c. See also the remarks on the irrigation of the Nan-hu oasis, *ibid.*, ii. pp. 612 sqq.

we found traces of old canals and abandoned cultivation for about two miles beyond the present limit of the oasis. But even thus it seems to me very unlikely that the importance of the oasis could ever have been great enough either to divert to itself traffic from the shorter and more convenient high road passing south of the range or in itself to justify the inclusion of Hua-hai-tzŭ within the marches protected by the Han Limes. Accordingly, when our search had definitely shown that the line followed by the border wall passed right across the depression from the west to the east, there remained the puzzling question as to why this line had been adopted by Han Wu-ti's 'Wardens of the Marches' instead of the far more easily guarded natural line of defence which the rugged range to the south appeared so conveniently to offer.[18]

Name *Ying-p'an* accounted for.

The answer to this question was found only when subsequent explorations along the Pei-ta-ho revealed the great extension to the north of the territory over which, under the great Han Emperor, a firm Chinese hold was established. But two points of antiquarian interest had already become clear before that discovery. One was that the alternative name of *Ying-p'an* 營盤, 'the military encampment', borne by the little oasis, may well be derived from the part which it must have played in the border defence scheme of Han times. Reference to the map will show that it would have been quite impossible, without a garrison placed there, effectively to guard the Limes along a line which here stretched for fully ninety miles across absolute desert. On the other hand, it appears unlikely that this outlying isolated oasis could have been garrisoned with any advantage in later times, when the defensive line on the north-western marches of Kan-su was withdrawn to the vicinity of Su-chou, as it certainly was during the Ming period and right down to the Man-chu conquest of Hsin-chiang. However, the question of the name *Ying-p'an* is one which could definitely be decided only by reference to Chinese historical records inaccessible to me.

Large lake represented in Chinese map.

Another point of interest is the proof, afforded by the line that the wall follows north of Ying-p'an, that this ground was not covered by a large lake either in Han times or later, as might have been concluded from the representation which the Chinese 'Wu-ch'ang map' gives of this area. Professor Futterer had already called attention to the discrepancy between this Chinese cartographical representation and the actual topographical facts,[19] and the evidence afforded by the remains of the Limes indicates a similar discrepancy as regards a much earlier period. This discrepancy deserves particular notice in view of the extensive use which has been made of data derived solely from that product of Chinese seventeenth-century cartography for the discussion of the so-called 'Lop-nōr problem' and similar questions.

Section IV.—THE LIMES TRACED EAST OF HUA-HAI-TZŬ

March to Ko-ta-ch'üan-tzŭ.

On the morning of April 28th we set out from our camp near the springs of Hsiao-ch'üan-tzŭ, and after proceeding about three miles across the breadth of the oasis, marched ESE. by the caravan track leading towards Su-chou. Traces of old canals and cultivation were met with over a distance of two miles or so from the edge of the oasis. Beyond this, for about ten miles, the route lay across a flat clayey plain where scrub was abundant and scattered tamarisk-cones rose to a height of eight

[18] Cf. *Serindia*, iii. pp. 1136. It was the great natural strength of the line of defence offered by the high and rugged hill chain flanking the great route west of Chia-yü-kuan that had in 1907 first led me erroneously to look here for the eastern continuation of the Han Limes line coming from Tun-huang and An-hsi; cf. *Desert Cathay*, ii. pp. 280 sqq.

[19] Cf. Futterer, *Wüste Gobi*, p. 24. It deserves to be noted that the Wu-ch'ang map, as quoted there, calls the eastern-most portion of the supposed great lake basin by a name rendered as 'sea of flowers'. This is manifestly a translation of the name *Hua-hai-tzŭ* 花海子, borne by the oasis.

Regarding the long-continued reproduction of this apocryphal great lake in European maps, cf. *Serindia*, iii. p. 1136, note 2.

to fifteen feet. This comparatively plentiful vegetation is probably supported by subsoil moisture brought down into this part of the depression by the flood-bed of the Po-yang-ho, which debouches from the transverse hill range farther south. When this zone was passed, bare patches of clay increased and gradually gave way to a surface of gravel or very coarse sand, and here the well of Ko-ta-ch'üan-tzŭ was reached after a total march of seventeen and a half miles (Map No. 42, A. 4). Aneroid readings showed for our camp at this place an elevation of 3,370 feet, fully three hundred feet lower than that of Ying-p'an-p'u-tzŭ (3,670 feet). This, together with the direction of the dry shallow beds met with in the course of our reconnaissances to the north-east and north, justifies the conclusion that the lowest portion of the Hua-hai-tzŭ basin lies in this direction.

Reconnaissances towards Limes line. These reconnaissances were carried out on April 29th by R. B. Lāl Singh and myself independently under weather conditions unusual for this desert region. Clouds hung over the basin, hiding from view both the gravel glacis of the Pei-shan northward and the steep and rugged hill chain to the south, and we actually started in the morning under light drizzling rain. Both reconnaissances were rewarded by interesting discoveries. The Limes wall was struck by Lāl Singh at a distance of over eight miles to the north, while I myself, to the east and north-east, traced a line of ancient watch-towers stretching towards the wall but quite distinct from it. In describing these remains, the survey and exploration of which kept us busy for a second day, I may conveniently start from the northernmost of the watch-towers mentioned.

Limes line struck north of T. XLIV. a. We reached this tower, T. XLIV. a, after covering a distance of close on five miles from Camp 129, across clayey ground dotted with sparse tamarisk-cones. Numerous shallow beds coming from the north-west showed surfaces of cracked mud on their banks, and suggested that flooding had occurred during recent years. To the north of T. XLIV. a we crossed for about four miles an area covered by low dunes and holding in its centre a narrow belt of small Yārdangs. We then entered a zone of tamarisk-cones gradually growing in height, and at a point about five miles from the tower, where these rose to about 30 to 40 feet, we came upon the line of the wall skirting their foot.

Agger formed of tamarisk faggots. As seen in Fig. 219, it presented itself here as a low mound half-smothered by drift-sand, but unmistakably disclosing its character by a thick layer of flat tamarisk branches covering its top. Where we cleared the *agger* of sand, it showed a width of 9 feet and still reached a height of about 4 feet. It was found to consist entirely of closely packed faggots of tamarisk wood, with plenty of sand between them but no layers of stamped earth. The thickness of the tamarisk branches employed indicated that old tamarisk growth must already have been plentiful near by when the wall was constructed; while from the absence of stamped clay layers anywhere along this section of the Limes it may safely be concluded that water for forming *pisé* layers was difficult to obtain.

Line of *agger* hidden by dunes. The *agger*, at a distance of about a furlong, disappeared eastwards among the tamarisk-cones: but Lāl Singh, when returning here under my instructions, succeeded in tracing its line at intervals for about two miles farther east to a point where it became completely hidden under ridges of high dunes. Westwards, too, the *agger* was lost, about 300 yards away, among tamarisk-cones. Going half a mile farther, we reached the north-eastern end of a regular 'Dawān' of drift-sand which with its dunes, 20 to 30 feet high, completely smothered the Limes line. Continuing, however, for another mile westwards we got clear of these high dunes and then without difficulty picked up the dark line of the *agger* again on open bare ground overrun by light sand only.

Continuation of line traced westwards. It could be seen from the last high sandy ridge running for over two miles westwards with one or two slight bends. At the spot where the photograph reproduced in Fig. 218 was taken, about half a mile on, the *agger* stood to a height of about 10 feet and was 6½ feet wide at the top. Here and

elsewhere along this section, the wall—for so it may well be called considering its solid construction—was found to be built solely of stout tamarisk branches thickly packed, without any distinguishable layers of earth. For about a mile and a half it ran on continuously, still keeping a height of 10 feet at the end and being 7½ feet wide at the top. It looked doubly impressive in this sandy waste, as a monument of constructive ingenuity and perseverance in truly forbidding surroundings. Beyond this it could be traced only as a low swelling of the ground, without any wood showing on the surface, for about three-quarters of a mile. Then we finally lost it among tamarisk-cones, close set but not of great height.

Absence of towers or marks of occupation.

Nowhere along the line thus surveyed by us were remains of towers or other marks of early occupation to be observed. It is, of course, possible that decayed mounds marking towers and small patches of refuse or pottery debris may lie hidden below the sand and thus completely escape notice. But the nature of the ground and the peculiar method of construction here adopted permit of another explanation being offered of this total absence of marks of former occupation. The difficulty of securing water which this very method of constructing the *agger* indicates may soon have convinced those who directed the operation of the practical impossibility of maintaining regularly occupied watch-posts in this region. In that event they might well have contented themselves with having the Limes wall constructed, as it stands now, without towers, and arranging for its protection solely by patrols from stations farther south placed in convenient proximity to water.

Limes line across waterless waste.

However this may be, it is certain that the ground over which the line of the Limes had been carried from here eastwards as far as the terminal course of the Pei-ta-ho (Map No. 42. C. 4), where we subsequently traced it, a direct distance of over forty-five miles, must have been a barren waterless waste of drift-sand or gravel Sai ever since ancient times. The fact that the Limes had been boldly carried into, and through, this truly forbidding area was striking proof that those responsible for its construction were prepared for great and sustained efforts in the face of formidable natural obstacles. Yet it was impossible to behold this impressive monument of their energy without being moved by the thought of the immense amount of human suffering which the execution of the imperial frontier scheme in this desolate region must have entailed.[1]

Ground between wall and C. 129.

After crossing a chain of dunes 40 to 50 feet high and proceeding southward for nearly four miles from the point where we left the wall, we came upon a decayed mound about 70 feet long and half as much across; an enclosure some 94 yards square, built of brushwood bundles (see plan, T. XLIV. e, Pl. 16), adjoined it. There was evidence of its having served as a herdsmen's station, and the potsherds lying about on the surface (see List) appeared to be of a late period. But only a thorough examination, for which there was neither time nor means, could have shown whether the remains of some ancient post connected with the Limes was concealed under the debris accumulated as a result of more recent, if intermittent, occupation by herdsmen. Farther south, on ground probably reached by occasional rain floods, grazing was abundant, and there, about two miles from our camp, we found a well 16 feet deep, which, as mud-built hovels near by showed, is still frequented by herdsmen.

Finds at watch-tower T. XLIV. a.

We may now turn back to T. XLIV. a, the northernmost of the series of ancient watch-towers previously mentioned as standing distinct from the Limes wall but stretching towards it. T. XLIV. a attracted our attention from afar, owing to its size and comparatively fair preservation. It was found to measure 32 feet square at the base and to rise to 14 feet above a low plateau of gravel. It was built of layers of clay, 6 or 7 inches thick, and thin brushwood layers between. On the eastern side a small structure appears to have adjoined it; the debris of its walls, mingled with

[1] For the reflex in Chinese poetry of the deep and lasting impression that has been left on the popular mind by the sacrifices incurred for the defence of China's desert borders, cf. Chavannes, *Documents*, pp. xxi sqq.

refuse, covered the ground to a distance of about 10 feet from the foot of the tower. By clearing this we recovered seven Chinese records on wood; the fragment of a large tamarisk stick, T. XLIV. a. 03 (Pl. XLVI), bearing Chinese characters at one end and charred at the other; also a number of small wooden objects, a horse-hair strainer and fragments of coarse fabrics described in the List below. Quite close to the south-west foot of the tower were found the fragment of a *Wu-chu* coin and a bronze arrow-head of Han type, such as is common along the Limes. The plentiful potsherds in the vicinity were also of the usual Han type, dark grey and mat or string-marked. There could be no doubt that the period of occupation was approximately contemporary with that of the Limes elsewhere. [With this conclusion M. Maspero's notes on the inscribed Chinese slips agree. T. XLIV. a. 018 forms part of a private letter with touching references to the condition of the exiled writer. In another letter the officer commanding a *t'ing* 亭[2] of which the name appears to be incomplete complains of his inadequate pay, &c. In 019 the receipt and dispatch of certain letters are recorded.]

Construction of tower T. XLIV. b.

Less than three miles to the south-east was found the tower T. XLIV. b, seen in Fig. 222, rising in very fair preservation to a height of 21 feet. Its construction closely agreed with that of T. XLIV. a, but its base, correctly orientated, measured 27 feet square. Only at the western corner had a small breach been made, and practically no effect of wind-erosion was noticeable at the foot. A layer of refuse, quite 6 feet high, adjoined on the north-eastern side, and this had protected a hurdle revetment, made of tamarisk branches and secured by twisted reed strings, of which Pl. 16 shows an elevation. No doubt, a similar revetment had once protected all sides of the tower, which accounted for its good preservation.

Finds at T. XLIV. b.

The top of the tower was covered with a good deal of straw and refuse. Amidst this, two inscribed Chinese tablets were picked up practically on the surface and yet with their writing intact. Here, too, was found the pottery jar T. XLIV. b. 015 (Pl. XXV) with a string still tied round its neck and a hole at the bottom closed by two tiny wooden boards, stuck close together. From the refuse below were recovered nearly two dozen Chinese records in the form of wooden slips, as well as an unfinished and uninscribed wooden tablet, T. XLIV. b. 034. This shows at one end a raised seal socket with five string-grooves, an arrangement otherwise unusual but found also in Chinese wooden tablets from the ancient *castrum* L.E. to the north-east of the Lou-lan site.[2a] Among the numerous small objects in wood, described in the List, may be mentioned several square prisms, T. XLIV. b. 01, 04–6 (Pl. XLVII), which may have served as 'chessmen', and T. XLIV. b. 037, which looks like a counter for some game. The small wooden spatulas, 02, 011, 035–6, like those found at stations in sections of the Limes to the west, were perhaps used as 'eating-sticks' for rice, &c.

[Among the documents noted by M. Maspero T. XLIII. 024, 026 are of interest as showing dates which correspond to the years A.D. 62 and 112, respectively. The former mentions the commandant of the 'signal post' (or company ?) *Chên-chung* 楨中, referred to also in T. XLIII. a. 013. In T. XLIV. b. 2 the commandant of the same post is referred to by name and official orders for certain officers mentioned as received from *Nan-ho* 南合. The name of the locality of *Wan-nien* 萬年, mentioned also in T. XLIII. a. 018, is of interest as it occurs in Chavannes, *Doc.*, No. 415 (T. XVIII. i. 21), as that of a canton in the sub-prefecture of Lung-lo west of Tun-huang.[3] The reference made to a locality so distant is curious, and so is also that to *Yü-mên* in T. XLIV. b. 3. It occurs in connexion with an order sent to the commandant of a *t'ing* for a levy of men. The draft of a letter, T. XLIV. b. 017, contains significant complaints of an exile serving on this inhospitable border.]

[2] Regarding the term *t'ing*, frequent in the documents from the Tun-huang Limes, cf. *Serindia*, ii. pp. 747 sqq.

[2a] See above, p. 262.

[3] Cf. *Serindia*, ii. pp. 620 sq., 690, &c.

Remains of tower T. XLIV. c.

Continuing in the same direction to the south-east for about a mile and a half, we came upon the remains of a much-decayed post, consisting of the foundations of a clay-built tower, T. XLIV. c, about 16 feet square, and of a room closely adjoining it to the north. The southern wall alone of the latter survived, standing to a height of about 3 feet and built of bricks 15" × 8" × 4" in size. From a small refuse heap close by three Chinese records on wooden slips were recovered, besides a wooden board, T. XLIV. c. 01, which had served as a fire-stick of the 'female' type; a bronze arrow-head of the regulation type, 03, and a *Huo-ch'üan* coin. Another arrow-head of the same type and a *Wu-chu* coin were picked up on bare gravel soil to the north of the post.

Finds at tower T. XLIV. d.

A fourth watch-tower, T. XLIV. d, was sighted by me at a distance of about three miles to the south-east on the evening of April 29th. But the examination of its remains had to be left to Naik Shamsuddīn on the following day, as the search for the line of the Limes called me northward. He found there a tower built of bricks, in fair preservation, measuring 16 feet square at the base and standing to the height of 14 feet. The top had carried a guard-room, of which the walls still stood in places 3 feet high. Within it lay refuse covered by tamarisk branches which had belonged to the roofing. From this refuse and from some lying at the foot of the tower, ten wooden slips with Chinese records were extracted; at the foot of the tower, moreover, two fragmentary Chinese documents on paper were recovered. Among miscellaneous relics found there were a bronze arrow-head of a type common on the Tun-huang Limes and several pieces of finely woven grey silk. About fifty yards to the south of the tower was picked up a copper 'cash' of K'ang-hsi (A.D. 1661–1728), which had evidently been dropped by some late visitor to this ground. The tower is clearly visible from the caravan route to Su-chou, and only the length of the march in prospect kept me, when passing by on May 1st, from visiting it in person.

Chinese records found at T. XLIV. d.

[M. Maspero's examination of the wooden documents has proved that T. XLIV. d. 08–9 is exactly dated on February 24th, A.D. 64, and contains orders concerning operations at an agricultural colony. This and two fragmentary records, T. XLIV. d. 05, 06, which mention orders issued to military officers, are obviously connected with the administration of the Han Limes. On the other hand, the two paper documents recovered at the foot of the watch-tower appear to have found their way there at a much later period. Of T. XLIV. d. 014, a long register concerning deliveries of coal to certain persons under military regulations, M. Maspero assumes on palaeographic grounds that it cannot date back farther than Sung times. In the case of T. XLIV. d. 015, which records a legal inquiry made concerning house property left by a deceased person, the writing according to M. Maspero points to the period intervening between the Sung and Yüan or Mongol dynasties.]

There still remains to be mentioned a small tower, T. XLIV. f, measuring about 16 feet square and 8 feet high, which was passed by us about half-way between T. XLIV. c and the well of Ko-ta-ch'üan-tzŭ. It is built of bricks, measuring 10" × 7" × 4", a size different from that prevailing at stations of the Limes,[4] and appeared to me of late origin. No potsherds of ancient type could be traced near it. The fact that it lies to the west, away from the practically straight line of the ancient watch-towers T. XLIV. a–d, would alone suffice to suggest that it had no connexion with these.

Purpose of detached towers T. XLIV. a–d.

It is impossible to doubt, in view of the documentary and other finds, that the four watch-towers above mentioned go back to a period contemporary with the occupation of the Limes, i. e. to Han times. [This conclusion has been fully confirmed by the evidence of such dates as the Chinese records on wood examined by Professor Maspero have proved to contain.] This chronological fact invests with special antiquarian interest the question of the character and object of this line of posts, running from SSE. to NNW., in relation to the Limes, which stretches north of it from east to west. As we did not succeed in tracing a continuation of this line either towards the

[4] See *Serindia*, ii. p. 737.

Limes *agger* or south towards the Su-chou oasis, I do not consider the question at present capable of a definite answer. Two possible solutions seem to present themselves. If the Limes wall constructed along the foot of the outermost Pei-shan range from the left bank of the Pei-ta-ho to north of Hua-hai-tzŭ was ever actually garrisoned, the line of the towers T. XLIV. a–d may have been intended to safeguard an important line of communication and supplies leading to it from the side of the Su-chou oasis; for this must have been always the main base for the defence of this portion of the border. Another suggestion which may conjecturally be put forward is that some time after the actual construction of the Limes *agger* between the Pei-ta-ho and Hua-hai-tzŭ the impossibility of effectively guarding this section, owing to the great distances from water and habitable ground, was duly realized. The attempt to guard the Limes east of the lowest portion of the Hua-hai-tzŭ depression, i. e. east of the ground around Ko-ta-ch'üan-tzŭ, may then have been abandoned, and the line of watch-stations, not provided with a wall but within sight of each other, may have been substituted with a view to protecting Hua-hai-tzŭ and the Limes north of it from attack on the eastern flank. But on this assumption there would remain the problem how the Su-chou oasis and the cultivated tract about Chin-t'a could have been protected from irruption through the gap thus left open. [In any case it deserves to be noted that the three dated documents from the watch-towers T. XLIV. a–d all belong to the Later Han period, while the four dated documents from the Limes section T. XLIII west of Hua-hai-tzŭ all go back to the times of the Former Han dynasty.]

Continuation of Limes line towards Pei-ta-ho.

Another question which I must be content to leave for elucidation by a future investigator is that of the exact connexion of the line of the Limes between the easternmost point where we traced it from Ko-ta-ch'üan-tzŭ, and the section marked by the towers T. XLV. a–h (Map No. 42. C. 4) north of the Pei-ta-ho bend. It was impossible for me to attempt to follow the line farther eastwards in person. The two water-tanks that alone remained available would have been insufficient to supply my comparatively large party with water for a number of days on that utterly arid ground. There was also the imperative consideration that I must visit Su-chou as early as possible in order to make timely arrangements for my intended explorations along the Etsin-gol; I was anxious to carry these out before the summer heat set in. So the task of tracing the continuation of the wall to the east had to be left to Lāl Singh alone, travelling with very light baggage. His report, when he subsequently rejoined me at Su-chou, showed that he had lost all indications of the line within less than two miles from where he had first struck it, owing to a big belt of dunes, and after getting round this, had searched in vain for any remains of the *agger* on the open gravel Sai beyond. The scantiness of his water-supply had then obliged him to turn to the south-east and to seek the northern edge of Su-chou cultivation on a line lying across the unsurveyed wastes of gravel and stone which divide the Hua-hai-tzŭ basin from the Pei-ta-ho drainage.

March towards Su-chou.

My own party started on May 1st for Su-chou by the caravan track; after a march of some twenty-six miles across utterly barren stony plateaus and a low hill chain, this brought us to the northernmost edge of outlying Su-chou cultivation (Map No. 43. A. 1). Professor Futterer has fully described the ground that we passed on this march, as we skirted the northern and north-eastern foot of the high and rugged transverse range that overlooks on the south the defile of Chia-yü-kuan.[3] The low hill chain that stretches eastwards from the range and continues in this direction as far as the Kan-chou river is crowned by large watch-towers. These were obviously intended to serve as advanced look-out posts for the mediaeval 'Great Wall' that extends along the southern foot of the hill chain. Like the towers in similar positions examined by me in 1907 near Chia-yü-kuan,[4] they all bore marks of late origin.

[3] See Futterer, *Wüste Gobi*, pp. 28 sq.

[4] Cf. *Serindia*, iii. pp. 1119 sq.

We camped by the small stream that descends from the gorge above Huang-ts'ao-ying, which I had visited in 1907, and on the following morning, after proceeding about two miles, passed through the mediaeval 'Great Wall' at the village of Yeh-mao-wan. As already correctly determined from a distance during our survey of 1907, the line of the wall here turns sharply at almost a right angle. We found this built of clay here and, as also in many places farther east, reduced merely to a low mound. Considering that it probably dates only from Ming times, this fact illustrates the comparatively rapid decay to which its inferior construction, without layers of fascines or other reinforcing materials, has exposed it. Since the policy of Chinese seclusion, which this wall was intended to serve, continued right down to the second half of the seventeenth century, there can be little doubt that it underwent repeated repairs during the few centuries of its existence as a border barrier.[7] Such repairs were certainly made easy by the persistence with which this late 'Great Wall' clung, wherever possible, to the immediate vicinity of cultivated ground, with complete disregard of any strategic or tactical advantages that a more advanced line might have offered.[8] Mediaeval Great Wall crossed.

While the Han Limes and its mediaeval successor showed this striking difference in point of solidity of construction, the intervening fifteen centuries had brought little change in the arrangement of the towers intended for watching the line of wall. The large tower seen in Fig. 224, standing to the east of the spot where the caravan route passes through the line before reaching the fortified Gate station or *kuan* of Yeh-mao-wan, still retained the guard-room on its top as well as the footholes facilitating access to it. The rope by which the men on guard were expected to clamber up to this room was found still dangling from the summit, in spite of the ruinous condition of the whole structure, just like the ropes which once must have served the soldiers of Han times when mounting guard on their towers. Watch-tower at Yeh-mao-wan.

An easy march from this modest Gate station with its temple and its few somnolent soldiers brought us the same day, past well-tilled fields and walled 'p'u-tzŭs', to Su-chou. The wide bed of its river was still almost dry, a proof that much snow had not yet melted in the high ranges of the Nan-shan that feed it, ranges which I had visited during our explorations of 1907. The change of climate involved by their vicinity soon, however, made itself felt in a violent storm of rain and hail, which overtook us before the city walls were reached. With more rain following during the next few days, I had good reason to welcome the shelter, at once peaceful and airy, that I once more obtained in the dilapidated pavilions of the picturesque temple at *Chiu-ch'üan*, the 'Fountain of Wine', my old quarters of 1907.[9]

[7] See *ibid.*, iii. pp. 1122 sq. for the origin and purpose of this wall.

[8] This can easily be seen by following the line of the wall north of the oasis of Su-chou, Map No. 43. A, B. 1, and north of the Kan-chou river, Maps Nos. 43. D. 1, 2; 46. A, B. 2.

[9] See *Desert Cathay*, ii. pp. 286 sqq.

CHAPTER XII

FROM SU-CHOU TO THE LIMES OF MAO-MEI

Section I.—THE LIMES ALONG THE PEI-TA-HO

Halt at Su-chou.

Many arrangements had to be made, necessitating a halt at Su-chou, before I could set out for the explorations I had planned along the Etsin-gol and at the ruined site of Khara-khoto. This ground, beyond the oasis of Mao-mei, lies outside the border of direct Chinese administration and is subject to a petty Mongol chief who exercises authority under the 'Wang' of Ala-shan. It was therefore essential, before entering Etsin-gol territory, to secure the goodwill of the Tao-t'ai of Su-chou, who acts in the capacity, as it were, of a Political Officer for the south-western corner of that portion of Mongolia which acknowledges Chinese suzerainty. Fortunately H.B.M.'s Minister at Peking had given effective support to the requests submitted by me in the autumn through Sir George Macartney, with the result that timely instructions had been sent from the Chinese Foreign Office to Mr. Chou Wu-hsüeh 周務學, the Tao-t'ai of Su-chou. After an exchange of several visits with this intelligent and energetic dignitary I obtained the issue of the needful recommendation to the chief or 'Beili' of the Mongols, a sub-tribe of the Torguts, grazing along the Etsin-gol.

Raising of funds.

The arrangements kindly made by the Legation included the payment to me of three thousand Taels in Chinese bullion, against a corresponding amount out of my grant remitted to Peking through the Kāshgar Consulate Treasury. But the economic uncertainties created by the upheaval of the Chinese revolution had not been without their effect upon Ya-mên finances in Kan-su, where apprehensions roused by the advance of the predatory bands of the rebel leader known as the 'White Wolf' were just then increasing the general stringency. As a consequence, the collection of this sum, comparatively small as it was, in sound silver had, I was told, cost some special effort. It took several days before the desired bullion in the shape of properly weighed 'horseshoes' actually reached my hands. But I found compensation for this delay in the fact that this payment, and still more of the authority on which it was made, which quickly became known, helped to create a favourable disposition towards my work among the officials of the districts controlled by the Su-chou Tao-t'ai. This was a source of special satisfaction to me, after the obstruction attempted from Urumchi.

Preparations at Su-chou.

In view of the great distance which our journey down the Etsin-gol would take us and of the possibility of extending it eastwards, the six days of our stay at Su-chou were very fully occupied. Careful arrangements had to be made for at least two months' supplies for all men and animals, since none would be obtainable among the Mongols nor even at the outlying oasis of Mao-mei, where there had been a serious failure of the crops in the previous year owing to insufficient irrigation. The remoteness of the region to which I was proceeding also made it necessary to attend to a great deal of writing, while still within reach of postal facilities. These days of halt moreover afforded an opportunity for supplementing our survey work of 1907 in the Nan-shan, and I endeavoured accordingly to have the relative position and height of the high snowy peaks of the

Attempt at triangulation.

Richthofen Range, which in a clear atmosphere are visible from Su-chou, more exactly determined through triangulation than had been possible before. Brilliantly clear weather on May 4th broke the succession of rainy or hazy skies and raised hopes that this might be possible. But though Lāl Singh duly measured an astronomically fixed base line on open ground some distance south of the city, the return of more clouds and rain ultimately frustrated this effort.

I have already recorded in *Serindia* such observations as I had been able to collect on my previous visits to Su-chou regarding the geographical features that account for the economic and commercial importance of Su-chou and for the part the city and district have played in the history of China's relations with Central Asia, ever since Han Wu-ti first established the command of Chiu-ch'üan.[1] I may therefore proceed at once to the account of the journey by which we reached our distant goal in the north-east. Apart from the archaeological interest attaching to the ruined site of Khara-khoto, there was a distinct geographical task to be served by this journey.

Drainageless basin of Su-chou and Kan-chou rivers.

The drainageless basin in which the Etsin-gol terminates receives all the waters carried down from the high ranges of the Central Nan-shan by the rivers of Su-chou and Kan-chou and their tributaries. In 1907 we had succeeded in surveying approximately the western half of the big mountain area from which those two rivers descend, as well as the greater portion of the geographically important plateau that extends between the foot of the Richthofen Range and the hill chain bounding the deserts of southernmost Mongolia. Well watered by those rivers and occupied by the main oases of the Su-chou and Kan-chou districts, this plateau has been destined to be a true passage-land between China and innermost Asia all through historical times.

Surveys planned along Etsin-gol R.

My object now was to extend the survey of this great drainageless area, towards both its terminal basin in the north and its head-waters in the mountains to the south-east. It was evident that the first portion of the task would have to be carried out before the heat on the Etsin-gol and in the deserts flanking it became too great for effective work. Then the summer months immediately following would remain available for fresh surveys in the high valleys of the Nan-shan, and also for that grazing holiday which was indispensable for our hardy camels if they were to keep fit for the explorations of the next autumn and winter.

Lāl Singh's route to Mao-mei.

The oasis of Mao-mei where the rivers of Su-chou and Kan-chou meet was to be our immediate objective, and for this we set out on May 10th by two different routes. Lāl Singh was to proceed eastwards by the high road to where it strikes the Kan-chou river. He was then to descend to Mao-mei along that portion of the river's course which breaks through the above-mentioned hill chain bounding the northern edge of the plateau, and which had never been surveyed. My own route had necessarily to lie along the Pei-ta-ho and past the outlying oasis of Chin-t'a in order to enable me to search for the eastward continuation of the Limes.

New route to Chin-t'a.

I had already followed the main route connecting this oasis with Su-chou along the right bank of the river, when returning in 1907 from my first visit to Chin-t'a. So I now chose a different track leading through that portion of Su-chou cultivation which lies north of the Pei-ta-ho. Here we passed again the line of the mediaeval 'Great Wall', completely decayed where we saw it, and then camped by the edge of village lands which stretched beyond it (Map No. 43. B. 1). Next day we crossed the low hill chain that starts from the eastern end of the range overlooking Hua-hai-tzŭ and extends towards Kan-chou. Here, too, as above Yeh-mao-wan, we found its crest guarded by advanced watch-towers, apparently of no great antiquity. At the north foot of the hill chain we had to cross an area covered with drift-sand ridges rising to thirty feet in height, before we reached the bed of the Pei-ta-ho about two miles from the southernmost point of the Chin-t'a oasis. The bed, over a quarter of a mile wide and excavated to a depth of about six feet, was com-

[1] See *Serindia*, iii. pp. 1126 sqq.

pletely dry, as were the heads of six canals which take off at this point. Three other canals, which we crossed a mile beyond on scrub-covered ground,[2] together carried only a volume of some sixty cubic feet of water per second. This clearly showed how scanty is the supply of surface water left for cultivation below Su-chou before the summer flood from the melting snows of the Central Nan-shan comes down towards the middle of June.

Chin-t'a oasis revisited.

Our march of May 12th to the north of the pleasant little town of Chin-t'a (Map No. 42. B. 4), surrounded by shady orchards and farms, took us over ground which I had already seen in September, 1907, on a rapid reconnaissance.[3] The avenues of fine elms leading first through rich cultivation and then through grass lands came to an end after we had proceeded about seven miles. Beyond this, cultivation was restricted to patches of varying size, separated by stretches of scrub-covered sandy waste. My impression was that since 1907 a good deal more of this waste, which had once probably been tilled, had been reclaimed by the industrious settlers of the scattered hamlets, and in places it was possible to observe this process actually extending. Yet it will evidently be long before the effects of the devastation wrought by the Tungan rebellion in this region is completely effaced. As we were nearing the large watch-tower of T'ou-tun towards the end of the day's march, the strange intermingling of green fields, tamarisk-cones and low scrub, and reed-covered dunes vividly recalled to my mind the scenes to the north and north-east of the Domoko oasis between Chīra and Keriya, where areas abandoned at different periods were again being brought under cultivation.[4] There these periodic changes had proved to be connected mainly with variations of physical conditions affecting the supply, from subterranean drainage, of water for irrigation. Here there could be little doubt that the change I saw proceeding resulted solely from economic recovery following a great political cataclysm of recent occurrence.

Information about 'old wall'.

During the day's march a piece of very welcome, if vague, information was secured by our Mongol interpreter, gruff old 'Mālum'. An aged Chinese villager whom he met on the way had told him that when going once 'some thirty *li*' to the north-east of T'ou-tun, he had come upon remains of a *chiu ch'iang* or 'old wall' built with brushwood at the foot of the low hills running above the Pei-ta-ho valley. The information, though it probably related to the Han Limes, sounded vague, and further inquiries at T'ou-tun resulted only in assertions of complete ignorance. In order not to lose time over an uncertain search, I accordingly let the baggage with Surveyor Muḥammad Yāqūb proceed by the cart-track to Mao-mei, while I myself set out with the rest of the mounted men towards the foot of the hills overlooking the wide riverine plain. After passing a dry river-bed about a mile and a half from camp we skirted an area where new fields had been opened amidst tamarisk-cones. There were signs that the jungle here was undergoing reconquest, having in places known cultivation before the Tungan devastation.

Agger of Han Limes.

Two miles farther we passed a second dry bed about sixty yards wide, and after crossing a clayey belt covered with *shōr* and scanty scrub reached the foot of the outermost Pei-shan chain. Low decayed ridges of rock striking from ESE. to WNW. rose here to heights of 40 or 50 feet above the gentle slope of detritus. From a plane-table fixing made here a watch-tower was visible far away on the top of a hill northward, but I looked in vain for signs of the Limes. Yet scarcely had we moved a hundred yards or so to the east when a curiously straight double line, which had looked like the outcrop of a decayed rocky ledge, revealed itself clearly as marking the direction of the almost wholly effaced Limes *agger*. As we proceeded along it, the mound gradually rose to nine feet in height and its mode of construction became evident. Rough slabs of stone had been

[2] The small detached area to the south-west of Chin-t'a-ch'êng (Maps Nos. 42. B. 4; 43. B. 1) ought to have been printed in yellow instead of green.

[3] See *Serindia*, iii. p. 1134.

[4] See *ibid.*, i. pp. 202 sqq.

built up so as to form a facing on both sides for a mound of coarse gravel, the width of the whole being 8 feet at the top.

Continuation of Limes line to WSW.

There could be no possible doubt that we were once again on the line of the Han Limes, and my regret was great that the necessity of proceeding that day towards Mao-mei precluded any attempt to trace its continuation also to the west. But after our return to Mao-mei in September, the initial marches of our journey across the Pei-shan offered an opportunity of revisiting this ground, and the continuation of the line was then determined for over fourteen miles to the west-south-west of the point where we had first struck it. The direction proved exactly that which would take it to the section of the Limes discovered amidst dunes and tamarisk-cones north of Ko-ta-ch'üan-tzŭ (Map No. 42. A–C. 4).

Towers T. XLVI. a, b.

After having followed the wall eastwards for about a mile we came upon the ruined tower T. XLVI. a rising on a small rocky knoll about 30 yards to the south of the line. It was built of stamped clay with brushwood inserted between successive layers on a base 16 feet square, and still rose to a height of about 9 feet. On the top the clay was reddened by fire. All round, pieces of mat-marked Han pottery could be picked up in plenty, and in the slight refuse at the foot I found two much-decayed fragments of wooden 'slips', no longer legible. Continuing for a mile along the wall, which was clearly traceable, we reached a small knoll, T. XLVI. b, bearing two heaps of stone. No structural remains were found on it, but from a refuse heap on the eastern slope some 20 feet lower down two Chinese records on wood were recovered, besides a few uninscribed wooden pieces. [One of the former has proved to be a fragment of some text on arithmetic.]

Remains of watch-posts T. XLVI. c, d.

A mile and a half farther the mound marking the *agger* brought us to a small rocky ridge about 60 feet high, T. XLVI. c; its flat top about 55 feet across bore remains of roughly built stone walls. The grey granite blocks of which they were constructed had been brought from elsewhere. An extensive accumulation of rubbish on the eastern slope yielded two fragmentary Chinese wooden records, a bronze arrow-head of the Han type, T. XLVI. c. 05, besides a few miscellaneous small objects. Of a tower, T. XLVI. d, which had crowned a small conspicuous ridge about a mile farther on, only a decayed mound of bricks remained. It measured about 18 feet by 7 and stood to a height of 4 feet. Layers of reeds separated the courses of bricks, which were 17" × 8" × 4" in size.

Line of Limes marked by mound.

Beyond T. XLVI. d the line of the Limes leaves the region of broken rocky hillocks and passes into an open gravel Sai. It was traceable here, with a slight change of direction to the SE., as a straight but much-decayed mound from 4 to 8 feet in height. A cutting made showed that the *agger* had been built here of layers of brushwood, which, however, through the action of moisture had decayed into mere reddish earth. A broad dry flood-bed coming from the hills accounted for this moisture. Farther on, where the direction to the east was resumed, it was interesting to observe that a double line of white *shōr* cropping out near the top of the low mound clearly marked the original width of the *agger* as approximately 8 feet, just as it did along completely decayed sections of the wall on the Tun-huang Limes and elsewhere.[3]

Remains of watch-posts T. XLVI. f, g.

It was only after proceeding more than three and a half miles that we came again upon traces of a watch-post at T. XLVI. f, and this, again, was marked only by debris of Han pottery. At T. XLVI. g, a mile farther on, a small shapeless mound of clay, no doubt the remains of a completely ruined tower, was found to occupy the north-eastern angle of a small enclosure, measuring 57 feet by 79 inside. Its walls, which were reduced to low mounds, had been built of layers of gravel and brushwood.

More interesting were the remains at the watch-post T. XLVI. h, which we reached after advancing another mile. Here a tower, built of bricks with layers of reeds between the courses, had

[3] Cf. *Serindia*, ii. p. 570, note 9.

Finds at ruined tower T. XLVI. h.

collapsed bodily towards the east. It appeared to have measured about 16 feet square at its base; the size of the bricks was 13" × 7½" × 4". Some quarters, of which brick-built walls were still traceable for 24 and 16 feet respectively, appear to have adjoined the south-east corner. From the refuse found here we recovered fourteen Chinese records in the form of wooden slips, several complete, and a considerable number of miscellaneous articles described in the List. Among these may be specially mentioned the curved iron knife, T. XLVI. h. 04 (Pl. XLVII); the lacquered wooden disc, 06 (Pl. XLVI); the small fragment of a beautifully made wooden object, with black lacquer, 08; a piece of twisted canvas, 02 (Pl. XLVI), apparently used for a torch; the wooden comb, 01.

[Among the wooden documents partly translated by M. Maspero several have proved to contain military records or orders of exactly the same type as recovered at watch-stations of the Tun-huang Limes. Thus in T. XLVI. h. 2 the number of men detailed for particular kinds of 'fatigues' are mentioned; T. XLVI. h. 021 indicates the course to be followed 'if bandits besiege the post and straw cannot be secured to light as a signal'. T. XLVI. h. 022 contains an order to the officer of 'the military agricultural colony of *Yü-mên*' to allot certain lands to seventeen men condemned to forced labour. Of direct antiquarian interest is T. XLVI. h. 016, which bears an exact date corresponding to A.D. 69; for it proves that this portion of the Limes was actually occupied during the years just preceding the Chinese conquest of Hāmi, A.D. 73, and the first opening of the trade route which gave direct access to the oases along the eastern extremity of the T'ien-shan.]

Limes towers T. XLVI. i, j, k.

Of the next three watch-towers, all found at a distance from each other of about one mile, T. XLVI. i was of the same construction as the last named; but having been repaired outside with layers of stamped clay it still stood to a height about 12 feet. It occupied low ground and curiously enough was not visible from its eastern neighbour, T. XLVI. j. This, too, was built of bricks of the same approximate size as used at T. XLVI. h, but had decayed badly. A bronze arrow-head found at its foot is of the regulation type of Han times. Near this tower the cart-track from Chin-t'a towards Mao-mei, which crosses to the left bank of the Pei-ta-ho near the patch of cultivation at Hsi-yo, approaches quite close to the line of the Limes. So it did not surprise me to find that the next tower, T. XLVI. k, just below which the road passes, had quite a modern appearance. In all probability the remains of an ancient watch-post had been by successive repairs enlarged to its present considerable size. Owing to its size and commanding position it serves as a conspicuous landmark for travellers to and from Mao-mei.

Arrival at Mao-mei oasis.

The mound marking the Limes could be seen from here stretching eastwards across the Sai for several miles. But in view of the approaching dusk and the distance still separating us from Mao-mei, I was obliged to leave the line at this point and to take to the cart-road. I regretted this diversion the less that our glasses showed the only tower still visible eastwards in the direction of the line of the Limes, T. XLVI. l, to be also modern in appearance. This was subsequently confirmed, for in September Lāl Singh had occasion to pass close by it and ascertained its name to be *Hung-hsia-tung*. We had to follow the cart-track for seven miles before the western edge of the oasis of Mao-mei was reached, and close on five more before we had made our way, in the darkness, to the desolate-looking walled town forming the administrative centre of the small district. On the way we crossed the bed of the Kan-chou river. Though still almost dry at the time, it showed by its width of nearly a mile how great is the volume of water which during the flood season descends in it to the confluence with the Pei-ta-ho, a few miles farther down.

Section II.—PAST THE MAO-MEI OASIS AND ITS OUTPOSTS

Halt at Mao-mei.

The advance of the season and the increasing heat, from which our camels had already begun to suffer, made it important to push on down the Etsin-gol. It was therefore doubly gratifying that, thanks to the help of Mr. Chou Hua-nan 周化南, the youthful Hsien-kuan of *Mao-mei* or *Mao-mu*,[1] we were able, during a single day's halt on May 14th, to hire the additional camels required to lighten the loads of our own animals; to secure some useful preliminary information about the route which I was anxious to follow from here through an unexplored portion of the Pei-shan on our return journey of the autumn, and also to obtain, as a guide along the Etsin-gol, an intelligent and willing young Chinese, accustomed to act as traders' agent among the Mongols of that ground. On the same day Lāl Singh rejoined me, having carried out his survey of the Kan-chou river from the point where it breaks in a tortuous course through the barren hill range that edges the great plateau on the north. He had, moreover, by following this route, been able to ascertain that the cultivated area of Mao-mei, narrow but over thirty-five miles in total length, extends much farther southward along the river than appeared from the cartographical sources previously available (Map No. 42. D. 4). But throughout this long stretch of cultivation and in the forlorn looking little town with its decayed Ya-mêns and few shops, there was evidence of the serious damage which a succession of deficient summer floods during the preceding two or three seasons had caused to all local interests. Supplies were quite unobtainable. The small garrison ordinarily maintained here had been recently withdrawn, it was said, for the same reason.

Etsin-gol valley as passage for inroads.

Even before the discovery of the Han Limes leading towards Mao-mei along the Pei-ta-ho, there were strong geographical reasons for the belief that this outlying oasis, scanty as its resources might be, must have been of considerable importance for the protection of the north-western marches of Kan-su. Nature, by affording water and grazing over a continuous line of some two hundred miles, has at all times provided in the valley of the Etsin-gol an exceptionally easy route for raids and invasions from the Altai region, that true home of the Mongols and other great nomadic races, towards the line of the westernmost oases of Kan-su. These, extending along the foot of the Nan-shan, constitute the great natural highway between China and innermost Asia. Wide belts of desert and barren hill-ranges stretch both to the west and east of the Etsin-gol. These belts, very difficult for any large bodies of men to cross, hardy nomads though they may be, help to protect this important 'corridor' for trade and military operations against serious attack from the north. But the valley of the Etsin-gol stands open, like a gate inviting invasion. We shall see that through this gate came the first great onslaught of the Mongols, under Chingiz Khān's leadership, which led to China's conquest and absorption in the greatest empire Asia has ever known. On how many previous occasions Huns, Turks and other nomadic races from the northern steppes had used this gate for the invasion of north-western China, is a subject well deserving study by those who have access to Chinese historical sources.

Mao-mei as a barrier against inroads.

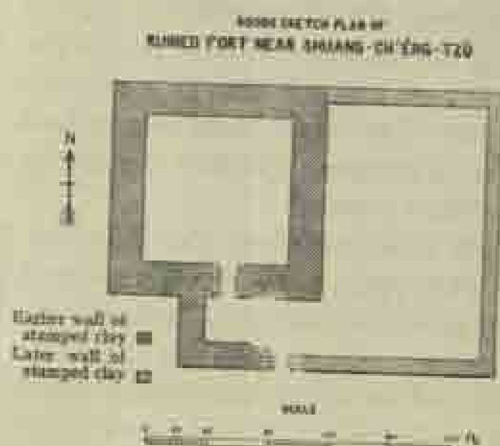
It will suffice here to point out that those who since the first Chinese advance under the Emperor Wu-ti into 'Ho-hsi' were concerned with the safeguarding of this indispensable passage land between China and Central Asia, were not likely to ignore or neglect the advantage that a cultivated area, well to the north of the great highway and yet easily capable of support from the side of both Su-chou and Kan-chou, would necessarily present for the purpose of a barrier whereby to close

[1] The name of the small town and its oasis was given to us in two different forms: *Mao-mei* 毛眉 and *Mao-mu* 毛目. The former was the one commonly heard. I regret that my *literatus* failed at the place to ascertain the correct official form. In the list of Chinese officials met on this journey which Chiang Ssŭ-yeh prepared for me at Kāshgar in June, 1915, I find the name of the *hsien* entered as 毛目.

that gate against inroads, or as an advanced base for offensive movements against nomadic hosts. The line followed by the Limes along the lowest course of the Pei-ta-ho convinced me that the Mao-mei area must have been included in the great border defence scheme of the Han epoch from the very time, between 121 and 115 B.C., when the territories of Su-chou and Kan-chou were first wrested from Hun domination and organized into Chinese border commands.[2] I was therefore particularly interested to see as much of the Mao-mei oasis as the time available would allow, and to visit whatever ancient remains might be discovered within or near it.

March along eastern portion of oasis.

Through inquiries made by our Mongol, who had a way of getting round the secretiveness all too common with the honest folk of these Kan-su marches, I learned that a ruined town to which local tradition ascribed great antiquity was to be found towards the lower end of that main portion of the oasis which stretches along the right bank of the united river course. Accordingly on May 15th, instead of at once regaining the left bank where the continuation of the Limes was likely to be found above the narrow strip of cultivation skirting the river on that side, I proceeded by the road leading through the broadest portion of the oasis towards Shuang-ch'êng-tzŭ and the site reported near it. The belt of cultivation was continuous for the first six miles or so from the town; but hemmed in on the east by a bare gravel Sai and on the west by the broad sandy bed of the river, it nowhere exceeded three miles in width. Farther on, scrub-covered patches of gravel intermingled with fields, until after ten miles we again reached well-tilled ground at the pleasant village of Shuang-ch'êng-tzŭ, where camp was pitched.



Ruined town near *Shuang-ch'êng-tzŭ.*

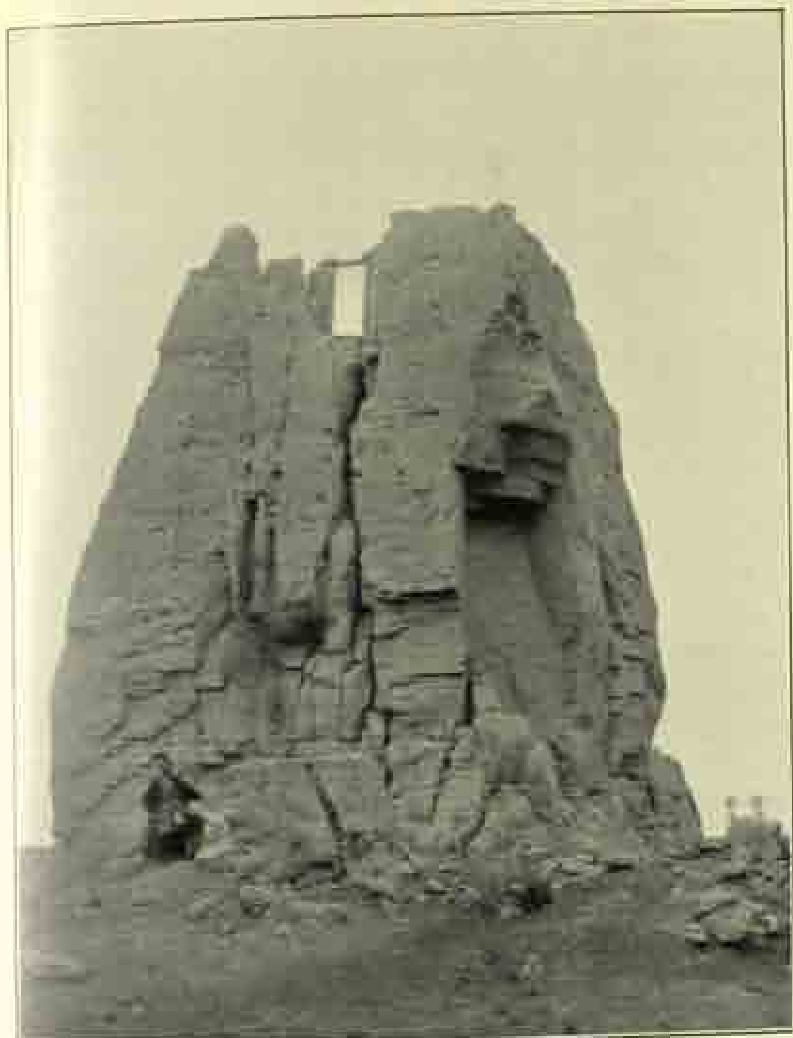
About a mile to the north, amid meadows, some of them marshy, rises the ruined town to which tradition, as ascertained locally, ascribes great antiquity. It is marked by walls of stamped clay, remarkably solid and 16 feet thick at the base. They enclose a quadrangle measuring about 300 yards on the northern and southern faces and about 400 yards on the others. On the south and east the walls have suffered big breaches, manifestly through wind-erosion, which explains also the big accumulation of sand within the south-eastern corner. The height of the circumvallation, where well preserved, reaches to about 25 feet. Apart from traces of a dividing wall, of less strength, running east and west, the interior was found empty. But the abundance of pottery debris, mostly of the grey 'mat or string marked' Han type (see Pl. XLVIII), found both within and without the walls, furnished clear proof of the early date of the fortified station. Of the few glazed pieces, of which the List below includes a specimen, none differed from the ware of the same class found at stations of the Tun-huang Limes that were abandoned in Han times. Other pieces, like T. XLVII. 03–5 (Pl. XLVIII), Sh. 01–6, grey on surface and reddish inside, showed annular scorings and festoon ornament such as are very common among the pottery remains of the Niya and Lou-lan sites. Considering the great mass of the potsherds, the total absence among them of any later ceramic ware clearly supports the conclusion that this walled station dates from the Han period.

Ruins of smaller fort.

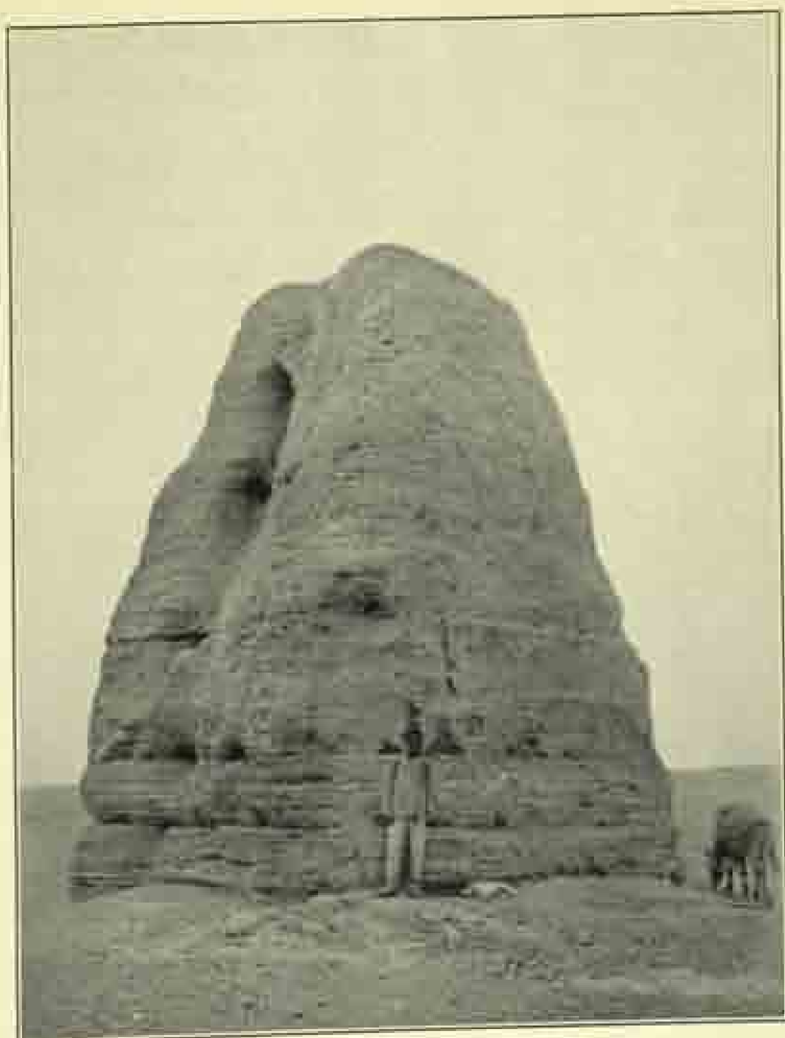
About a quarter of a mile to the north-east there stands a smaller fort of which the inner portion also has a distinctly ancient appearance. This portion, as the sketch[2a] shows, forms a square of 96 feet inside measurement, protected by walls of stamped clay 21 feet thick and still rising to about 30 feet in height. The gate, 10 feet wide, leading through the south face of this remarkably massive

[2] Cf. Chavannes, *Documents chinois*, pp. v. sq.

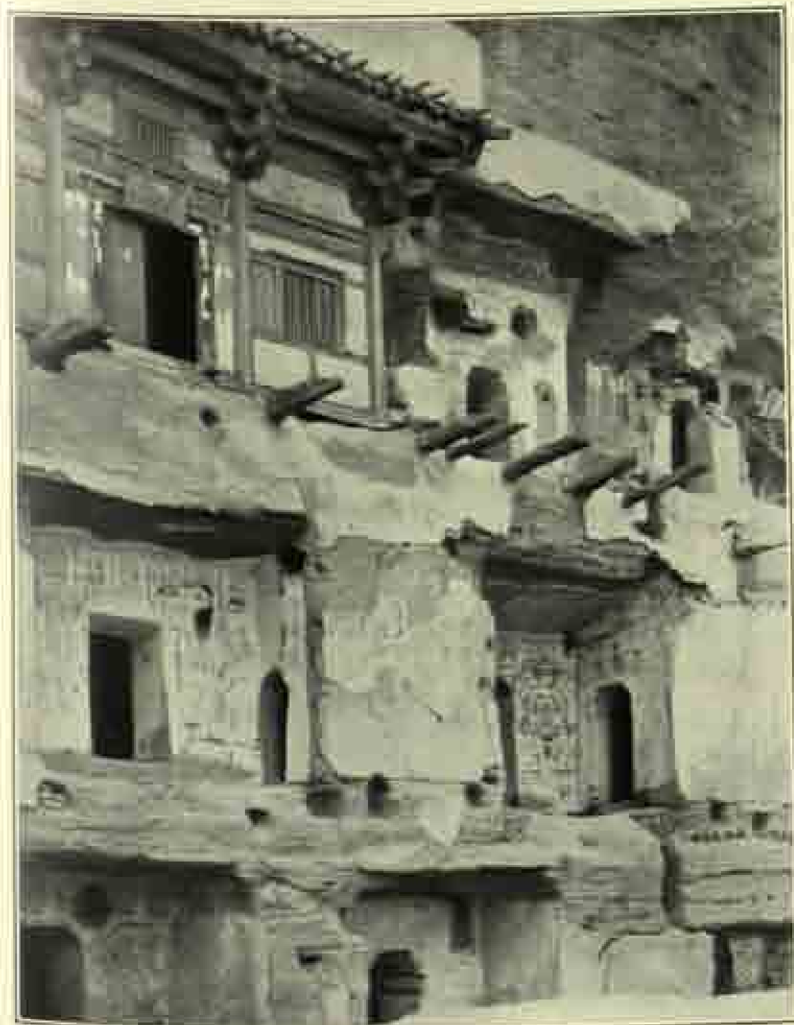
[2a] See fig. above.



224. WATCH-TOWER ON LINE OF MEDIAEVAL 'GREAT WALL', OUTSIDE YEH-MAO-WAN, SU-CHOU.



225. WATCH-TOWER T. XLVIII. b, ON LIMES LINE BELOW MAO-MEI.



226. CAVE SHRINES, WITH ANTECHAPELS EXPOSED, NEAR CENTRE OF CH'IEN-FO-TUNG SITE.



227. CHIEF OF ETSIN-GOL TORGUTS, WITH MONGOL HEADMEN.

little fort was protected by an outer gate with walls 17 feet thick. In continuation of this runs the southern wall of an outer enclosure, undoubtedly a much later addition, built with walls only 10 feet thick and about 12 feet high to the foot of the parapet. The latter is built of bricks set vertically and betrays its very late date by traverses intended to offer protection against enfilading. It appeared to me very likely that an ancient stronghold had been utilized here to serve as the nucleus of a small fortified station of much later date. As the soil here was a soft clay and had suffered no erosion, little pottery debris was to be found, and no definite evidence could be drawn from it. My general impression of the ruins above described was that they mark the position once occupied by a garrison that was intended to protect the passage along the Etsin-gol close to where the Han Limes crossed the river.

On May 16th we crossed the river, whose bed was here over a mile wide but at the time held water only in pools, to the narrow but well-tilled strip of cultivation along its left bank. From the farms of Ssŭ-fên where we reached this, I searched in vain for any traces of the Limes *agger* along the narrow gravel glacis immediately above the fields and then among the low broken ridges of sandstone higher up. Nor were any traces of it seen while we marched on for about five miles over the gravel glacis overlooking the smiling fields of Êrh-chia-miao. Crossing to left bank of Etsin-gol.

But when we reached the ruined tower T. XLVIII. a, which was visible from afar, perched on a little outlying spur some eighty feet above the foot of the Sai, the straight line of the completely decayed *agger* caught the eye at once. As a low yet distinct swelling on the gravel-covered glacis of the hill chain, it could be seen coming from above Ssŭ-fên with a bearing of N. 40° E. and then turning at T. XLVIII. a in the direction of N. 58° E. The swelling was so low that while we moved close and more or less parallel to it over the uniform gravel surface, it had necessarily failed to attract attention. The tower T. XLVIII. a, broken down to a height of only 9 feet, clearly belonged to the time when the Han Limes was constructed. Its base measured 24 feet square, and the bricks of which it was built were of the regulation size of 14" × 8" × 5". Scarcely any refuse was to be found on searching the stony slopes below either this tower or the next, T. XLVIII. b, towards which the line of the decayed *agger* was leading. But of this the explanation is easy. Neither the men guarding the border nor the 'military Babus' looking after clerical business on it would make their quarters at watch-stations when far more comfortable shelter could be found on cultivated ground within half a mile! Limes towers T. XLVIII. a, b.

We followed the line of the wall in the direction indicated along the foot of the Sai for over a mile, and after a short descent to the verdant fields and shady elms of Hsia-ming-tzŭ, the last we were to see for a time, picked it up again without difficulty. It was just visible as a straight swelling of the ground leading towards the tower T. XLVIII. b, which was reached at a distance of close on four miles. The Limes *agger* had almost completely decayed here, as it had also done near the confluence of the Pei-ta-ho with the Kan-chou river, where in September it was searched for without success by one of the surveyors. This decay may be accounted for by the effect of the drainage descending periodically from the hill chain whose low outlying spurs here closely approach the river-bed. T. XLVIII. b (Fig. 225) was found to be a tower solidly built of stamped clay and rising to a height of 24 feet in comparatively excellent preservation. It measured 20 feet square at its base and with its slightly conical shape recalled T. III, VII and other watch-towers seen on the Tun-huang Limes. Decay of Limes *agger*.

From the steep ridge on which this tower stands, the line of the *agger* was clearly seen to turn to N. 83° E. and to run on straight for about a mile, reaching the left bank of the river-bed just where this divides into two branches and greatly increases its width. So there could be no doubt that the Han Limes here, below the northernmost point of the actual cultivation of Mao-mei, had taken Eastward turn of Limes line.

a decided turn to the east and crossed to the opposite side of the Etsin-gol valley. It was impossible at the time to follow it there in search of the continuation of the line; for this would have prejudiced the work that I had planned to carry out lower down in the Etsin-gol delta. But on my return after accomplishing that task I took care to revisit the ground, with the result to be recorded in a later chapter.[3] For the time being it was a point of antiquarian interest that cultivation ceases within half a mile, at the foot of this ridge, just as it evidently did in Han times. And characteristically enough there was found below the tower, towards the left bank of the river, the modest shrine of Ta-fêng-miao as proof that local worship has not ceased to respect the position once occupied by a 'gate' of the ancient Han wall.[3a]

Ruined fort guarding approach along river.

But it soon became clear that, whether in Han times or later, care had been taken to close the approach from the north along the Etsin-gol by defensive works more effective than the mere border wall, and well advanced beyond it. As we moved across the riverine flat of gravel and coarse sand to the grazing ground, known as Ta-wan, that lies by the westernmost branch of the river bed (Map No. 42. D. 5), we passed, at about four miles' distance from T. XLVIII. b, a small fort remarkably massive, T. XLVIII. c (Fig. 233; Pl. 16), which strikingly recalled the fort at the ancient 'Jade Gate', T. XIV. It measured 32 feet square, inside walls of stamped clay themselves fully 20 feet thick, which still stood to a height of over 30 feet. Among the potsherds found near it both ancient and late ware was represented. Accumulations of sheep-dung within the walls indicated recent occupation as a herdsmen's shelter.

Circumvallation of later date.

About a mile to the north of where our Camp 140 stood at Ta-wan I found a large circumvallation, T. XLVIII. e (Fig. 228), quite close to the left bank of the wide river-bed (Map No. 45. A. 3). Its Chinese name was given as T'ien-tsung-ta-wan, its Mongolian as Arun-tokhai-dürüljin. Its walls of stamped clay, about 18 feet thick and as much in height, were provided with large square bastions at the corners and enclosed an area about 220 yards square. The low ruins of three or four structures inside the circumvallation revealed a masonry of vertically set bricks which was clearly of late date. The bricks, in what seemed to have been a temple, measured 16" × 10" × 6". The general impression I received was that of a later stronghold, and the absence of any ancient pottery debris seemed to confirm this.

Ruined stronghold on right river bank.

About a mile to the south-east of this ruin and on the right bank of the river I visited on the morning of May 17th another stronghold, T. XLVIII. d, which to the Mongols is known as Taralingin-dürüljin, the latter part of the designation (also pronounced as *durwuljin*) meaning 'fort'. It occupies the western extremity of a low gravel plateau curving round from the desert hill chain that we subsequently crossed on our way to Kao-t'ai (Map No. 45. A. 4). This extremity of the plateau is faced on the opposite side of the valley by the foot of the gravel glacis that descends from the easternmost outlier of the Pei-shan range above the Mao-mei oasis. Between the two the river-bed contracts to less than half a mile. The stronghold, imposing in its ruin, looked on the whole older than T. XLVIII. e. Various features pointed to successive structural changes, but there was no definite evidence to date them.

Ruined fort T. XLVIII. d.

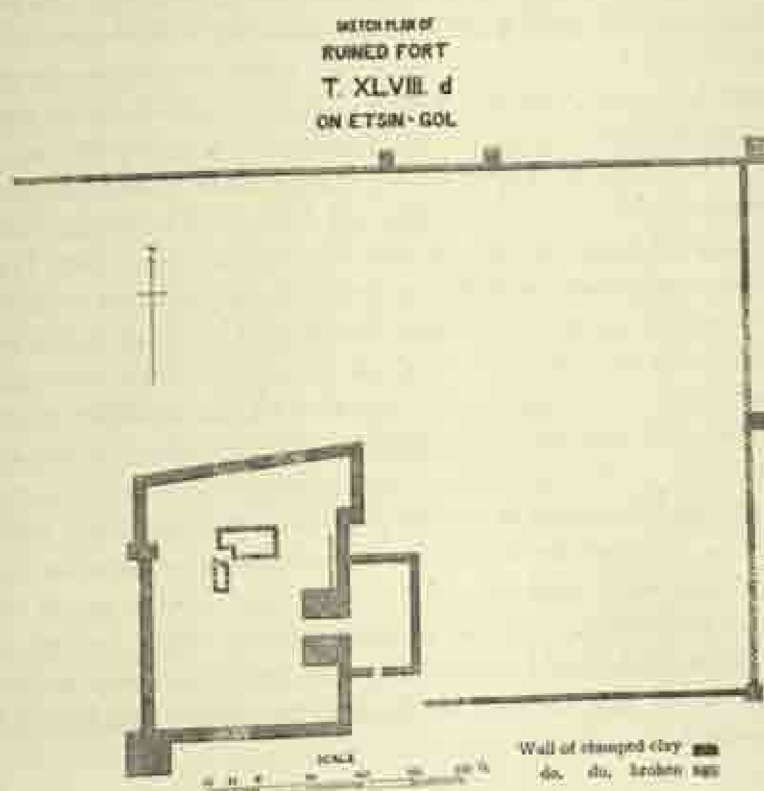
As the sketch-plan shows, there is an inner fort of irregular oblong shape, enclosing an area roughly 250 by 185 feet. The walls of stamped clay, about 12 feet thick at the base and still standing in places to a height of about 25 feet, are strengthened by two solid bastions, one at the south-western corner and one on the western face. The gate leading through the eastern curtain is protected by an oblong outwork with walls of lesser strength, and within, moreover, by massive flanking towers. The inside faces of the latter show a revetment of manifestly later masonry in which courses of bricks set flat and upright alternate. A similar revetment covers a great portion

[3] See below, pp. 507 sq.

[3a] See above, p. 369, note 15.

of the eastern wall on the outside. The walls of the fort had suffered but little except on the north and south faces. There they showed breaches which did not appear to be due to wind-erosion. A much larger outer enclosure adjoined this fort on the north and east; its walls, also of stamped clay, but only 5 or 6 feet thick, could be traced for about 700 and 500 feet, respectively. These walls were badly decayed, but towers of varying sizes intended to strengthen them survived in several places. The position of the end of the northern wall towards the river could not be determined, and the western wall had disappeared completely, having probably been carried away by a flood of the river.

Within the inner fort, walls of two small structures survived to a height of a few feet, the masonry showing courses of vertically set bricks. Excavation brought to light only remains of the roofing; nor did the refuse found in the south-west and south-east angles of the enclosure yield any datable objects. The clearing of two shallow depressions, probably marking the position of wells, one in the inner, the other in the outer fort, could not be attempted. So for chronological indications I had to fall back on what could be gathered from the remains of pottery; these were very plentiful, especially within the outer circumvallation. Among the potsherds fragments of hard grey ware, with or without 'string' or 'mat' marks, prevailed, distinctly suggestive of antiquity. Pieces of plain whitish-grey glazed ware were few. Most significant, perhaps, was the total absence, so far as I could observe, of porcelain and of such glazed ware as I had found at the sites of the Sung period that I had previously examined. Uncertain date of fort.



The irregularity in the plan of the inner fort speaks against its attribution to Han times, at least in its present shape, while the absence of such pottery as is common at Khara-khoto or Ch'iao-tzŭ makes it difficult to believe that the stronghold could have seen prolonged occupation either during the period of Sung or that of Hsi-hsia domination. I was therefore led to conjecture that the construction of the Taralingin-dürüljin defences might originally date, perhaps, from the troubled epoch which prevailed between the close of Han times and the advent of the T'ang dynasty, and again after the Tibetan conquest of the Kan-su marches (*c.* A.D. 750), when inroads of Turkish and other nomad tribes from the north must often have threatened the security of the Chinese settlements along the Kan-chou river and the foot of the Nan-shan. But some of the repairs may well be due to later temporary occupation. Origin of river defences.

A ride of two miles diagonally across the widening bed of the river brought us back again to the Etsin-gol route on the left bank. There in a small Mongol encampment, the first met with, 'Mālum', our itinerant Lāma, discovered a relative in the owner of one of the few felt tents. This unexpected meeting was not without its interest. Mālum had drifted years before to the Tun- First Mongol camp met.

huang marches from the T'ien-shan grazing grounds above Kara-shahr. His discovery of a relation here more than seven hundred miles away in a straight line from their former common haunts illustrates the huge distances over which Mongols are prepared to move in search of grazing or for other purposes. I was eager later on to secure the guidance of this much-travelled Mongol for the autumn's journey across the Pei-shan, but unfortunately did not succeed.

Tower T. XLVIII. f.

A farther march of two miles by the caravan track across the bare gravel Sai brought us to the last watch-tower that we were to meet along the left bank of the Etsin-gol above the river's delta. This tower, T. XLVIII. f, stood on a low ridge commanding a distant view of the riverine plain and of the utterly bare glacis that stretches down towards it both from the Pei-shan hills to the north-west and from the desert plateaus to the east and south-east. The tower was of exactly the same shape and size as T. XLVIII. b, measuring originally 20 feet square at the base and tapering somewhat towards the top, which was about 22 feet above the ground. But it was built of solid bricks, measuring 14" × 8" × 5", just like the other ancient watch-tower, T. XLVIII. a, on the extreme northern stretch of the Mao-mei Limes. A thin revetment of stamped clay which had been added later, apparently with a view to enlarging the space on the top, had for the most part fallen off again.

Advanced look-out post.

The forts of Ta-wan were fully visible from this tower T. XLVIII. f, which, as its construction proves, belonged to the Mao-mei Limes. There can therefore be little doubt that it served as an advanced look-out post for that Limes, like the towers T. I and T. II which we found guarding the Lop desert route where it approaches the western extremity of the Tun-huang Limes.[4] Neither refuse nor pottery debris was found near it. It deserves to be noted that on the opposite side of the river, and at a distance of about three miles from the tower T. XLVIII. f, there stands facing it the small but very massive fort known as Ulan-dürüljin, which in view of its similarity to T. XLVIII. c in point of size and construction may also belong to Han times.[5]

The remainder of that day's march took us across a wide and bare plain of gravel to the halting-place of Ulan-else, a narrow patch of vegetation and wild poplars by the left bank of the winding river. No structural remains of any kind were seen on these sixteen miles, though the ground was perfectly open and the atmosphere quite clear, a storm on the preceding evening having brought some light rain. We had entered ground which, though on an old line of traffic towards the heart of Mongolia, could never have seen settled Chinese life. And here the chapters dealing with our search for the ancient border line by which that life was to be protected may appropriately be brought to a close.

Section III.—LIST OF ANTIQUES FROM RUINS OF HAN LIMES

OBJECTS FOUND OR EXCAVATED IN DIFFERENT LOCALITIES ALONG LIMES

T. 01. Lug of wooden bowl, similar to T. XLIII. k. 016, but slightly smaller. Similar ornament, with addition inside rim of two thin black lines, with yellow line below, and between black lines groups of transverse lines, dots, &c., as ornament. $4\frac{1}{4}" \times 1\frac{1}{4}"$. Pl. XLVII.

T. 02. Iron centre-bit, with three-pointed end and thickened shank. Used for making circle and dot ornament frequent on bone, ivory and wooden objects of Asiatic, Roman, Greek, &c., origin. Diam. of circle made by tool $\frac{5}{16}"$, full; $5\frac{1}{4}" \times \frac{5}{16}"$ at broadest part. Pl. XLII.

[4] Cf. *Serindia*, ii. pp. 638 sq. It seems likely that the tower shown in Map No. 42. D. 3 on the gravel glacis above our Camp 140, and about two miles distant, served as a link between the watch-post thrown out at T. XLVIII. f and the watch-tower T. XLVIII. b on the line of the Limes itself. I now regret that time did not allow me to visit it. The direct distance between the two is about seven miles, not too great for fire signals.

Regarding the line of watch-towers, probably also advanced watch-posts, to be found on the gravel Sai overlooking the riverine flat from the east, above and below Taralingin-dürüljin, see below, p. 507.

[5] See the sketch-plan, Pl. 16; cf. below, p. 507.

T. 03. **Fr. of plaited cane basket,** made of two layers of plait; prob. circular when complete. Edge upturned at wide angle and thickened by having two bands of plait (also double) sewn to it, one outside and one inside preserved to h. only of 1¼". Diam. c. 10". Pl. XLVI.

OBJECTS EXCAVATED BENEATH LIMES WALL NEAR WATCH-TOWER T. III

T. III. 01. **Wooden writing-slip,** blank. 9¼"×⅜"×³⁄₃₂".

T. III. 02. **Specimen of reeds from wall,** much broken. Length 6".

T. III. 03. **Misc. frs. of plain silks;** crimson, blue, green, and cream; latter with fine rib. Gr. M. 4½".

T. III. 04. **Strip of leather,** doubled and overheaded with coarse string along joined edges. 6¾"×1¼".

T. III. 05. **Frs. of woollen canvas,** coarse dark brown. Very brittle. Average length 1½".

T. III. 06. **Fr. of splintered wood,** possibly from lug of bowl. 2¹³⁄₁₆"×¹³⁄₁₆"×⅜".

T. III. 07–8. **Two frs. of woollen canvas,** natural buff, medium thickness; 08 with seam. Gr. M. (08) 9".

T. III. 09. **Head of feathery grass;** very brittle. Length 9".

T. III. 010. **Specimen of cane.** Length 1". Pl. XLVI.

OBJECTS FOUND AT WATCH-TOWERS T. IV. A, B

T. IV. a. 01. **Fr. of iron;** from side of vessel. 2"×1⅞"× c. ³⁄₁₆".

T. IV. a. 02. **Specimen of reeds** from fascines of wall, T. IV. a; also of reed rope securing longitudinal fascines. Gr. length 6".

T. IV. a. 03. **Fr. of pottery** vessel with wide horizontal lip. Moderately fine clay, grey. 2⅛"×4½"×¼". Lip 1¼" broad. Pl. XLVIII.

T. IV. b. 01. **Fr. of pottery;** part of mouth of unglazed pottery, with almost flat oversailing rim. Surfaces horizontally ribbed. Reddish inside, grey out. Upper surface of rim part reddish, but grey towards outer edge. 3"×2½"×⅜". Rim 1".

T. IV. b. 02. **Fr. of pottery vessel,** with prominent thickened rim and nearly horizontal shoulder. Grey, moderately fine. Gr. M. 6", thickness ⅜" to ⅝". Pl. XLVIII.

OBJECTS FOUND AT WATCH-TOWERS T. VIII, XI, XIII

T. VIII. 01. **Specimen of whitewash layer,** from wall of tower, T. VIII. Two pieces, c. 4"×3".

T. XI. 01–2. **Two frs. of porcelain bowl,** with underglaze decoration in blue. Same ware and pattern as T. XLIII. l. 06–9 (*q.v.*). 01 shows part of bottom with base-ring; 02, small fr. of rim. 01 length 2¾", h. 1¼".

T. XIII. 01. **Two wooden sticks,** flat on one side, overlapped about 3" end to end and bound together with strip of cane. Both broken off at outer ends. Traces of bark on one. 15"×⅜"×³⁄₁₆". Pl. XLVI.

T. XIII. 02. **Rope.** Coarse fibre, with second piece bound to first with string. 2' 1"×2¼". Pl. XLVI.

T. XIII. 03. **Fr. of blade of iron implement;** straight, back (intact) slightly thickened, edges broken. Rusted. 3⁵⁄₁₆"×1¾".

OBJECTS EXCAVATED AT WATCH-TOWER T. XIV. C OF SECONDARY LIMES LINE

T. XIV. c. 01. **Fr. of plain silk;** buff, fine weave. 6¾"×4¾".

T. XIV. c. 02. **White pebble;** smooth disc-shaped. Diam. 1¼", thickness ⅝".

T. XIV. c. 03. **Fr. of pottery;** from neck and rim of vessel. Fine clay black, hard, wheel-made. Neck short and curved, expanding below to shoulder (broken off short), and above to thickening rim slightly hollowed in top. 2⁹⁄₁₆"×1½"×³⁄₁₆" to ⁷⁄₁₆".

T. XIV. c. 04. **Piece of silk waste,** buff.

T. XIV. c. 05. **Scrap of plain silk,** fine, buff, with seam by one edge. 2"×½".

OBJECTS EXCAVATED AT WATCH-TOWER T. XXII. D

T. XXII. d. 01. **Cane (?) stick,** finely sharpened at one end, abruptly at other. 4¾"×¼"×¼".

T. XXII. d. 02. **Lug of wooden bowl,** boat-shaped, similar to T. XLIII. k. 026 but lacquered plain red. 4½"×1"×1".

T. XXII. d. 03. **Wooden disc,** roughly made, warped and split. Use uncertain. Diam. 5", thickness ⅜".

T. XXII. d. 04. **Wooden comb,** with arched back and fine short teeth. H. 2¼", width 1¾". Pl. XLVII.

T. XXII. d. 05–6. **Two wooden spatulas,** shaped as T. XXIII. a. 07, but shorter. 05 broken off at handle end, 06 trimmed to point and carefully smoothed all over; cf. T. XLIII. k. 010–11, XLIV. b. 02. Length 4", gr. width 1¼", gr. thickness ³⁄₁₆". Pl. XLVII.

T. XXII. d. 07. **Fr. of plain silk,** cream-coloured, fine ribbed weave. Gr. M. 4".

T. XXII. d. 08–9. **Two frs. of woollen fabric,** natural buff; plain weave. 08 very irregular; 09 stained with black ink or paint. Gr. M. (09) 9".

T. xxii. d. 010. Bundle of silk (?) waste; *c.* 3" × 1½" (diam.).

T. xxii. d. 011, 012. Specimens of grain.

T. xxii. d. 025. Wooden writing-slip, blank. Decaying wood, warped and broken. Gr. fr. 6¼" × 1".

T. xxii. d. 027. Wooden peg; roughly cut, with grotesque face roughly drawn in ink at top. Cf. T. xliii. j. 01, and *Ser.* iv. Pl. LII, T. vi. b. i. 002-4. 5½" × ⅞" × ⅝". Pl. XLVII.

T. xxii. d. i. 01. Frs. of cotton (?) fabric; coarse, plain, natural buff, knotted together, with scrap of plain buff silk sewn to it. Gr. M. 9".

T. xxii. d. i. 02. Frs. of vegetable-fibre string, various thicknesses, knotted together. Gr. length 9".

T. xxii. d. i. 03. Fr. of vegetable-fibre fabric; warp widely spaced and weft of pairs of picks, wrapped-twined. Prob. part of shoe sole. 10" × ¾". Pl. XLVI.

T. xxii. d. i. 04. Handful of silk waste, natural buff.

T. xxii. d. i. 05-7. Three frs. of plain silk; red, buff, and blue, resp. Gr. length 7".

T. xxii. d. i. 08. Fr. of cane, perhaps from writing-slip. Blank. 2¾" × ½".

OBJECTS EXCAVATED AT WATCH-TOWER T. XXII. E

T. xxii. e. 01. Fr. of pottery. Part of wall of wheel-made vessel; unglazed. Reddish grey. 3¾" × 2¼" × ⅜".

T. xxii. e. 02. Wooden comb; parabolic back with fine teeth, of which many broken. Similar to T. xxii. d. 04. 3" × 2".

T. xxii. e. 011. Fr. of wooden bow or cross-bow (?), in two pieces. Irregularly pentagonal in section. Outer face shaved down at upper end. Broad transverse notch 1$\frac{1}{12}$" wide and ¼" deep, cut at 3¾" from end. Opposite end twisted, tapered, and broken. Remains of pink paint over whole, and of Chin. inscr. on four faces, mostly in small neat hand but almost effaced. Wood hard. Length (both frs. joined) 16½", gr. thickness ⅞" × ⅞". Pl. XLVI.

T. xxii. e. 012. Wooden seal-case, as *Ser.* iv. Pl. LIII, T. xix. ii. 001 (cf. ii. p. 771, T. viii. 5, type A), but unfinished. Block squared, and three grooves sawn across, but cavity not cut out. 1¾" sq. × ⅞". Pl. XLVII.

T. xxii. e. 013. Broom of feathery-headed grass, tied round with string; see *Anc. Khotan*, ii. Pl. LXXIII, D. ii. 011. Length 1' 11", diam. 1½". Pl. XLVI.

OBJECTS EXCAVATED AT WATCH-TOWER T. XXII. F

T. xxii. f. 01. Fr. of horse's bit. Made of iron rod, doubled and twisted closely upon itself, leaving loop at each end, of which one is corroded through. Rusty. Length 2⅝", thickness of stem ¼". Pl. XLVII.

T. xxii. f. 02-3. Two bronze arrow-heads; cf. C. xcvi. 016; Lal S. 015; Kum. 01. Barbs cut well back; small triangular depression in each face; iron tangs (remains of). Good condition. Lengths 1$\frac{5}{16}$" and 1¼". Pl. XLVII.

T. xxii. f. 04. Fr. of plain silk, very fine, natural buff. Gr. M. 5½".

T. xxii. f. 05. Bronze strap-end (?). D-shaped plate; slightly convex in front, flat at back, with hole through for pin at each end of straight side, and two holes close together in middle of long curve. Fair condition. Length ⅞", gr. width $\frac{9}{16}$", thickness *c.* $\frac{1}{32}$". Pl. XLVII.

OBJECTS EXCAVATED AT WATCH-TOWERS T. XXIII, T. XXIII. A

T. xxiii. 01. Wooden object; peg (?), square at one end, chamfered and tapering towards other; square reversed again, abruptly forming nut-like end with outer corners chamfered into octagon. Roughly made. Originally painted black. 6" × 1¼". Pl. XLVI.

T. xxiii. a. 01. Shoe, well made of string with open-work string uppers; as *Ser.* iv. Pl. XXXVII, L.A. vi. ii. 0025. 8¼" × 3". Broken. Pl. XLVI.

T. xxiii. a. 02. Fr. of shoe; part of uppers, similar to preceding but of finer string very closely worked.

T. xxiii. a. 03. Wooden stopper (?); shaped like bottle cork. Roughly cut. 2¼" × 1½".

T. xxiii. a. 04. Wooden stick; natural form, with bark removed, sharpened at one end, chisel-shaped and broken at other. Split and weathered. 19¾" × 1¼".

T. xxiii. a. 06. Ball of woollen string, fine but strong. Appears to be wound round core of cloth. Diam. 2¼". Pl. XLVI.

T. xxiii. a. 07. Wooden spatula, with long narrow blade broadening towards end. Marks of usage suggest a stirring implement used in cooking. Length of whole 16¼", blade 3" × 1¾". Pl. XLVI.

T. xxiii. a. 08. Flat strip of wood, spear-head shaped; one edge cut with small regular notching. Much cracked and split. Length 11", width 1¼". Pl. XLVII.

T. xxiii. a. 09. Fibre. Large hank of fibre resembling *bhang*. 18½" × 5" × 3".

OBJECTS EXCAVATED AT WATCH-TOWER T. XXIII. B

T. xxiii. b. 01. Leather. Rough strip, thick, with several pieces sewn to it with leather thong. 6¼" × 1¾".

T. xxiii. b. 02. Small wooden cleat, with nick in centre and tapering at both ends, as *Ser.* iv. Pl. XXVIII, N. xiv. iii. 0017. 2¾" × ⅝".

T. xxiii. b. 03. Tapestry frs., of finely woven rug, in rainbow stripes of red, green, and brown. Largest 5" × 7".

T. xxiii. b. 04. Fr. of pottery, grey, moderately fine, showing 'mat-marking' outside. Gr. M. 7¾". Pl. XLVIII.

T. xxiii. b. 05. Fr. of pottery vessel, generally resembling T. iv. b. 02. Grey; thickened rim and bulging shoulder; faintly 'mat-marked' on exterior. Gr. M. 4¾", thickness ¼" to 7/16". Pl. XLVIII.

T. xxiii. b. 06. Wooden bracket, of same type as *Ser.* iv. Pl. LIV, T. viii. 004, &c. Tenon cut off very short at length of 1¾". Bracket slopes down from one end of tenon, and curls in spiral at end; chamfered at edges and painted black, but has no incised lines. Fair condition. Length of whole 6¼", gr. depth 1¾", gr. thickness ⅝". Pl. XLVI.

T. xxiii. b. 07-8. Two wooden sticks, with bark removed. 07 trimmed roughly round; 08 also trimmed round, flattened and sharpened at ends, possibly for pen. Lengths 8¾" and 6¾".

T. xxiii. b. 09. Fr. of felt, covered on one side with three layers of silk, one of pale blue silk between two of white; quilted on with parallel rows of stitching. 5¾" × 1¾" × 3/16".

OBJECTS EXCAVATED AT WATCH-TOWER T. XXIII. c

T. xxiii. c. 01 (room). Wooden block; rect. with short edges chamfered and one long surface concave. 1¼" × 1¾" × 1 3/16".

T. xxiii. c. 02. Wooden lug of boat-shaped bowl, lacquered red-brown, with rough black scrolls between two black lines on inner face, as T. xliii. k. 026. 5" × 1½" × 1".

T. xxiii. c. 03. Specimen of reeds from wall.

T. xxiii. c. 04. Fr. of iron hoe (?) blade. Narrow wedge-shape in section, hollow to take thin end of handle; one side broken away, and one end gone; as *Ser.* iv, Pl. LIV, T. xv. 0010. Rusted. Length (incomplete) 2¾", depth 2". Pl. XLVII.

T. xxiii. c. 05. Flat oblong piece of bone, neatly squared, yellow, and polished by friction. 1¾" × 1⅜" × 3/16". Pl. XLVII.

T. xxiii. c. 06-7. Two bronze arrow-heads; solid, triangular in section, with angles cut back to form hexagonal shaft; as L. J. 01, and *Ser.* ii. p. 767, T. 007; iv, Pl. LIII, T. xiv. a. 007. Iron tang (broken off) in each. Point of 06 blunt and rounded, of 07 sharp. Fair condition. Length of each 1 3/16". Pl. XLVII.

T. xxiii. c. 08. Fr. of leather. 5¾" × 1¼".

T. xxiii. c. 09. Fr. of rope; vegetable fibre. 10" × ⅜".

T. xxiii. c. 010. Fr. of cloth. 14" × 3".

T. xxiii. c. 011. Wooden peg; pyramidal top with flat point, rectangular shaft. Split on one side. 5" × ⅞". Pl. XLVI.

T. xxiii. c. 012-13. Wood. Roughly pointed ends of pegs, prob. similar to T. xxiii. c. 011. Shaft broken off. 1¾" × ⅞". Pl. XLVII.

T. xxiii. c. 014. Fr. of iron implement. 2" × ⅞" × 3/16".

T. xxiii. c. 015. Fr. of silk; plain, discoloured. 3" × 2½".

OBJECTS FOUND AT WATCH-TOWER T. XXIII. d

T. xxiii. d. 01. Fr. of pottery vessel, showing flat bottom and spring of side. Dark red surfaces, grey in middle. Gr. M. 3¾", thickness ¼" to 7/16".

T. xxiii. d. 02-3. Two frs. of glazed pottery; thick body of gritty clay; grey; glaze, each side, much scratched lustrous dark greenish-brown. Cf. *Ser.* ii. p. 789, T. xxix. *l*. Gr. length 3", thickness ⅜" and ⅞".

T. xxiii. d. 04-5. Two frs. of glazed pottery; gritty buff body; glaze, each side, iridescent mottled bronze and green. Scratched. Gr. length 1½", thickness 5/16".

T. xxiii. d. 06. Fr. of glazed stoneware (?), from plain, slightly everted, rim of vessel. Body of fine texture, buff; glaze, each side, dark greenish-brown, thin, evenly applied. Cf. *Ser.* ii. p. 789, T. xxix. i. H. 1⅜" × 1 9/16" × ¼".

T. xxiii. d. 07. Fr. of glazed stoneware, from plain rim of vessel very slightly everted. Body of fine texture, grey, very hard; glaze, each side, of light stone-grey, changing perhaps to cream (at lower edge) on outside. 1¾" × 1¼" × ¼" to 3/16".

T. xxiii. d. 08. Fr. of glazed pottery. Body light pinkish buff; glaze of light creamy buff, covering whole of interior of fr. but stopping short of lower (broken) edge on exterior and showing part of lower wall of vessel unglazed. Faintly crackled. Glaze has flowed down unevenly on outside. Cf. K.E. x. 01. Gr. length 1½", thickness 3/16".

T. xxiii. d. 09. Fr. of glazed stoneware, from straight rim of vessel. Fine buff body; glaze outside of mottled bronze and green, resembling tea-dust (?) glaze; inside, cream. Gr. length 1⅜", thickness ¼".

T. xxiii. d. 010-13. Four frs. of porcelain; 011-13 belonging to same vessel. White body, painted on outside (011-13) with rough floral design in dull blue under faint bluish-white glaze; (010) with fr. of bird (?) or flower design, too small to be distinguishable, in bright blue under greyish-white glaze.

Inside, in each case, plain glaze, except one edge of 013 which shows fr. of plain rim with band of blue on inner side. Rivet-holes, not bored through, on outside of 012, 013. For similar ware, see T. xliii. l. 06-9. Gr. M. 1¼", thickness ⅛".

OBJECTS EXCAVATED AT WATCH-TOWER T. XXIII. F

T. XXIII. f. 01. **String sandal**; similar to T. XXIII. o. 03. 11½″ × 4″.

T. XXIII. f. 02. **String sandal sole**: strongly made. 11¼″ × 4″.

T. XXIII. f. 03. **Five wooden sticks,** mostly Chinese writing-slips; blank.

T. XXIII. f. 04. **Two frs. of string mat,** composed of two-ply string laid as a warp by doubling backwards and forwards; joined by string weft laid in double waling at edges and at intervals of 3″ between, making a kind of string '*chick*'. Complete width *c.* 17″ × 10″. Pl. XLVI.

T. XXIII. f. 05. **Fr. of coarse canvas**; buff. 6½″ × 6″.

T. XXIII. f. 06. **Fr. of thick string,** of vegetable fibre; prob. from sandal. Gr. length 16″.

T. XXIII. f. 07. **Two frs. of plain silk,** one crimson, 2″ × 1⅜″, other green, 2½″ × 2″.

T. XXIII. f. 08. **Fr. of pottery**; mouth of unglazed pottery vessel, with prism-shaped rim. Fine, grey body. Well made. 3″ × 1½″ × 5/16″. Pl. XLVIII.

T. XXIII. f. 09. **Iron holdfast,** L shape. 2⅜″ × ⅜″. Pl. XLVI.

T. XXIII. f. 010. **Frs. of silk.** Miscellaneous small rags; plain colours: crimson, blue, brown, yellow, and buff. Largest piece 12″ × 2″.

T. XXIII. f. 011. **Wooden tablet,** rect., roughly pointed at one end, at which is a hole. Eight small holes drilled along one edge. 4¼″ × 1¼″ × ¼″. Pl. XLVII.

T. XXIII. f. 012. **Fr. of pottery** from upper edge of vessel, showing plain rounded rim and wall slightly ribbed horizontally on outside; has been broken from vessel in antiquity and been repaired by means of boring holes in either piece and tying the two together with string. Blackish, well-levigated body. Sand-encrusted. Gr. M. 3½″, thickness ¼″. Pl. XLVIII.

T. XXIII. f. 013. **Fr. of wooden implement,** as *Ser.* iv. Pl. XXXV, L.A. IV. iii. 001; perhaps stay for dasher of churn. Broken off through central hole; wood furrowed and partially decayed. Length 8⅜″, gr. width 1½″, thickness ⅜″. Pl. XLVI.

T. XXIII. f. 014. **Fr. of wooden implement,** very roughly cut. Use prob. same as preceding. Long narrow wedge-shape, flat, oblong in section at wider end. Here surface has been cut down ¼″, and large hole (1⅛″ diam.) pierced through vertically. Inside of hole also rough, and fr. broken off half-way across it. 2⅛″ from narrow end a groove, 1″ wide and ⅛″ deep, has also been cut out across surface. Length 11⅜″, width 2⅜″ to ⅜″, thickness 1″ to 1¼″. Pl. XLVI.

T. XXIII. f. 015. **Fr. of iron wedge-shape shoe,** prob. blade of hoe; hollow to receive handle. Sides broken away. Cf. T. XXIII. c. 04 and *Ser.* iv. Pl. LIV, T. XV. 0010. 3¼″ × 2¼″ × 1″. Pl. XLVII.

T. XXIII. f. 016. **Wooden tally-stick** (?). Flat slip like writing-slip, with bark left on edges. Six notches cut in one edge near end. Length 7⅜.

OBJECTS FOUND AT WATCH-STATIONS T. XXIII. G, H

T. XXIII. g. 01. **Frs. of string** tied together. Prob. part of sandal.

T. XXIII. g. 02. **Canvas bag** or sheath, hemmed at mouth. 8½″ × 1⅜″.

T. XXIII. h. 01. **Fr. of thick glazed stoneware,** from lower part of wall of straight-sided vessel, turning in slightly at bottom as for base. Outside ribbed horizontally. Hard greyish-white body. Glaze inside, mottled bronze and green; outside, mottled bronze green and black, much scratched. Gr. M. 2¼″, thickness 5/16″.

OBJECTS EXCAVATED AT WATCH-TOWER T. XXIII. L

T. XXIII. l. 01. **String sandal,** as *Ser.* iv. Pl. LIV, T. XIV. a. 002. 10½″ × 4¼″.

T. XXIII. l. i. 01. **Six wooden writing-slips,** Chinese; blank. Average length 9″; gr. width ⅜″.

T. XXIII. l. i. 02. **Seven wooden writing-slips,** Chinese; blank, or with unimportant marks. Gr. 9″ × 1″.

T. XXIII. l. i. 03. **Wooden bowl,** boat-shaped; with side handles or lugs, near one of which a piece of string has been threaded through hole drilled inside. Very roughly made. Knife scratches on bottom. For specimens of handles, see T. XXIII. c. 02 and T. XLIII. k. 026. 5⅜″ × 3¼″ × 2″. Pl. XLVI.

T. XXIII. l. i. 04. **Fr. of wooden bowl**; boat-shaped, sides missing, black inside. Hole drilled downwards near end at one side. 6¼″ × 3″.

T. XXIII. l. i. 05. **Fr. of wooden bowl,** round; about half; roughly cut by hand. Traces of black paint (?). Diam. 4¼″, depth 1⅛″. Pl. XLVI.

T. XXIII. l. i. 06. **Fr. of iron weapon or implement**: four-sided, hollow, flattening towards 'blade' end, which broken off. Retains tang of wooden handle, which projects (splinter only) at handle end. Length of iron fr. 2⅜″, width 13/16″, thickness 13/16″ to 3/16″. Pl. XLVII.

T. XXIII. l. ii. 01. **Eighteen wooden writing-slips,** Chinese; blank. Av. length 9″.

T. XXIII. l. ii. 02. a–d. **Frs. of wood,** roughly cut. *a* and *b* irreg. sticks; *c* roughly spoon-shaped; *d* flat, broken at one end, notched on one edge near intact end, and piece of string tied into notch. Largest (*a*) 5″ × ⅜″ × ⅜″.

T. xxiii. l. ii. 03. Flat wooden slip, with six notches cut on one edge, and faint traces of writing (?) on one side; prob. tally. 7⅞″ × ½″ × ¼″. Pl. XLVII.

T. xxiii. l. ii. 04–8. Five wooden writing-slips. 04 has traces of ink on one side. 8¾″ × $\frac{7}{16}$″ × ⅛″. 05, Chinese writing on one side; broken at one end. 4⅝″ × $\frac{5}{16}$″ × ⅛″. 06, parts of Chinese chars. on both sides. 9⅛″ × ⅜″ × ¼″. 07, rough stick with traces of Chinese chars. on two sides. 7″ × ⅜″ × ¼″. 08, Chinese writing on one side and ink line across centre of reverse. 9¼″ × $\frac{5}{16}$″ × ⅛″.

T. xxiii. l. ii. 09. Fr. of plain silk fabric, cream-coloured. 11″ × 2½″.

OBJECTS EXCAVATED AT WATCH-TOWER T. XXIII. o

T. xxiii. o. 01. Fr. of lacquered wood; elliptical food bowl with small solid lug handles. Red inside, black outside; black handles painted on outer surface with rough red pattern, like pea-pod. Smooth continuous curved surface inside. Roughly cut outside; flat at bottom; straight sides from lip to depth of ⅞″, whence chamfered inwards to meet bottom. One side broken away and missing. 5¼″ × 4½″ × 2″. Pl. XLVII.

T. xxiii. o. 02. Bamboo; piece of fine quality about one-fourth of the complete natural thickness, cut at a joint, and cut to thin tapering chisel-shaped point, blunt, at opposite end. 4¼″ × 1″. Pl. XLVII.

T. xxiii. o. 03. String sandal, very strongly made, of extraordinary length, being 11¾″; breadth 4″. Pl. XLVI.

T. xxiii. o. 04. Wooden object, perhaps whip handle; round, tapering. Smooth from thick end for about ⅔ of the length, then roughly cut with three annular depressions for holding gut bands to secure splice. Where bands occur it is cut flat for splicing, the glue being still recognizable. A hole drilled through thick end is square on one side and round on other. Narrow hollow chamfer cut round edge of thick end. 7″ × ⅞″. Pl. XLVII.

LIST OF OBJECTS FOUND AT WATCH-STATIONS T. XXXVII. a, c, d, f

T. xxxvii. a. 01. Wooden stick; pointed. 8⅜″ × ⅜″ × ¼″ (at broad end).

T. xxxvii. c. 01. Fr. of pottery; blackish-grey, rather fine but with white granulations; faint signs of mat-marking on outside. Gr. M. 3⅞″, thickness ¼″.

T. xxxvii. c. 02. Fr. of pottery; hand-made, pinkish drab, mat-marked on outside. Gr. M. 6¼″, thickness $\frac{5}{16}$″.

T. xxxvii. d. 01. Fr. of pottery; from bottom of vessel, showing flat base and spring of side; plain. Drab, well-levigated clay. Pierced with three holes, prob. for ancient repairs. Gr. M. 4″, thickness ¼″. Pl. XLVIII.

T. xxxvii. d. 02. Fr. of pottery, from flat bottom of vessel like the preceding; plain. Black-grey, well-levigated clay. Gr. M. 4⅞″, thickness $\frac{5}{16}$″.

T. xxxvii. d. 03. Fr. of pottery, from plain rim of vessel. Wall slightly ribbed horizontally upon each side. Red. Gr. M. 1⅞″, thickness $\frac{5}{16}$″.

T. xxxvii. d. 04. Fr. of pottery; from straight-sided vessel, with rim turned out at angle of 135° and finished off square. Smooth blackish-grey. Wall slightly ribbed horizontally. Inner surface flaked off. One hole drilled by edge, either for suspension string, or for ancient repair. 2¼″ × 4½″ × ¼″. Pl. XLVIII.

T. xxxvii. f. 01. Reeds and brushwood, from Limes *agger* (southern line), 1¼ miles E. of T. xxxvii. f.

OBJECTS EXCAVATED AT WATCH-TOWER T. XL. c

T. xl. c. 01, 03. Flakes of wood; plain. (*03*) 1¼″ × $\frac{5}{16}$″ × $\frac{1}{16}$″. (*01*) 2¼″ × $\frac{7}{16}$″ × $\frac{1}{16}$″.

T. xl. c. 02. Wooden peg; round. 1$\frac{5}{16}$″ × $\frac{7}{16}$″.

T. xl. c. 04–6. Frs. of leather; three, of white kid, edged with holes of sewing. Largest 6″ × 3¼″.

T. xl. c. 07. Wood-wool; small bundle, such as now used for packing.

LIST OF OBJECTS FOUND OR EXCAVATED AT WATCH-TOWERS T. XLI. a, b, c

T. xli. a. 01. Stick. Hard shiny surface. Cut at both ends, and bark partially removed. 18¼″ × $\frac{7}{16}$″.

T. xli. a. 03. Fr. of pottery. Upper part of vessel, with outward curved rim, thickened and cut into flat faces; one outward, faintly channelled; one upward from first at about 30°. Body curves out from short neck. Surface horizontally wavy, by potter's fingers. Surfaces dark grey; inside dull red. Well-washed clay. 3¼″ × 2″ × ¼″.

T. xli. a. 04. Fr. of pottery; wall of large vessel, dark grey, rather porous and not well made. Surface covered with 'string' marks, across which at right angles two incised lines 1¼″ apart and a third 1″ from others. 5¼″ × 4¾″ × ⅜″ (nearly). Pl. XLVIII.

T. xli. a. 06. Fr. of rope; coarse straw, three-ply, loosely twisted. 11¼″ × ⅞″.

T. xli. b. 01. Drug, in small yellow rods, wrapped in leaf of wild poplar (?).

T. xli. b. 02. Wooden spoon, roughly made, with curved handle. Bowl in same line as handle, flat, broken. 4¼″ × ⅞″ (width of bowl).

T. XLI. b. 04, 05. Frs. of wood. Three chips. 3¾" × 1" × ⅝" largest.

T. XLI. b. 06, 07. Frs. of leather; thin. Holes of sewing on 07. Gr. 5" × 1⅜".

T. XLI. b. 08. Fr. of pottery; part of foot of bowl similar to T. XLIII. l. 04, but bright buff. 1¾" × ⅞" × ⅜".

T. XLI. b. 09. Fr. of pottery; from wall of vessel; grey, faintly string-marked. Fine texture. 2" × 1⅜" × ⅜".

T. XLI. b. 010. Fr. of pottery; part of rim similar to T. XLI. c. 03. Much weathered. 'Rivet'-hole near one end. 3⅛" × ⅞" × ⅝".

T. XLI. b. 011. Fr. of pottery; from wall of vessel; string-marked; similar to T. XLI. a. 04. 2⅝" × 2⅜" × ¼".

T. XLI. b. 012. Fr. of pottery; from wall of vessel; grey; string-marked. 1⅝" × 1⅜" × $\frac{5}{16}$".

T. XLI. b. 013. Fr. of pottery; from wall of vessel; faceted similar to T. XLI. c. 03. 1⅜" × 1⅞" × $\frac{5}{16}$".

T. XLI. b. 014–17. Frs. of pottery; of vessel similar to T. XLIII. b. 02. 014, 015, 017, parts of slightly out-turned thickened rim. Body dense grey-buff. Glazed inside and out with thin dark greyish-brown-mottled glaze. 016, part of wall, same glaze; but inside only about half covered, leaving remainder unglazed. Gr. fr. 1⅝" × 1$\frac{3}{16}$" × ⅜".

T. XLI. b. 018. Fr. of textile; loosely woven coarse woollen twill. Discoloured to dark brown. 3½" × 4½".

T. XLI. c. 01. Fr. of pottery; similar quality to T. XLI. c. 03. Lower part of same vessel (?), showing faceted sides running to base, which is without foot. 'Rivet'-holes drilled near each of the three broken edges and another through bottom at broken edge. 3¾" × 4" × ⅜" (nearly). Pl. XLVIII.

T. XLI. c. 02. Fr. of pottery; thickened rounded rim, of common red ware. 2⅝" × 1" × ⅝" (at rim).

T. XLI. c. 03. Fr. of pottery; from upper part of vessel. Fine grey body; well burnt and uniform in colour throughout. Rim overhangs boldly, the upper surface 1⅜" and of soft *cyma recta* curve, laid nearly horizontally; the under-surface, simple hollow running slightly into general surface of side. From rim, side falls nearly straight for about 1⅜" with a faint band of two or three incised lines. Below this it turns slightly under, and is cut into irreg. flat facets forming a kind of flat fluting, each 'flute' having a round top. (Cf. *Ser.* iv. Pl. XXXVI, E. Fort. 0011; fr. of glass.) Near top a hole drilled through. Traces of thin slip or glaze. 4⅝" × 4⅛" × ⅜". Pl. XLVIII.

T. XLI. c. 04. Fr. of pottery; from lower part of thick vessel; of well-washed clay, dark grey throughout. Flat bottom, no foot. Large hole through bottom made before firing. Small 'rivet'-hole near junction of two broken edges of side. 4⅛" × 2⅛" × ⅝".

T. XLI. e. 01. Rope. Two pieces, made of hemp (?). 4" × $\frac{5}{16}$".

T. XLI. e. 02. Wooden spindle, broken; for length of 3⅞", a regular cylinder, the remainder the same shape but thicker. An abrupt shoulder at junction of two parts. 6⅛" × ⅜" (nearly) to ⅝". Pl. XLVII.

OBJECTS EXCAVATED AT WATCH-TOWER T. XLI. f

T. XLI. f. 01. Fr. of wooden tablet; thin rectangular piece of conifer wood, broken at one long edge through small hole drilled near one end. 4⅛" × 1⅛" × $\frac{3}{16}$".

T. XLI. f. 02, 04–11, 013, 023, 024. Frs. of wooden slips, of various sizes, blank or effaced. Largest 9⅛" × $\frac{7}{16}$" × $\frac{3}{16}$".

T. XLI. f. 03. Fr. of wood; irregular rectangle; close grained and hard, resembling that of which ancient combs are made. Shape such as might have been 'roughed out' for a comb, but with irregular indentation at one end. Sides rough. 4⅛" × 2⅜" × $\frac{5}{16}$".

T. XLI. f. 012. Fr. of cord, of vegetable fibre tied into knots. 7" × $\frac{3}{16}$".

T. XLI. f. 014. Fr. of cotton (?) cloth; showing selvedge. 4" × 2½".

T. XLI. f. 015. Fr. of silk; buff, finely corded. 6" × 4".

T. XLI. f. 016. Fr. of cord, of vegetable fibre. 3" × $\frac{3}{16}$".

T. XLI. f. 017. Fr. of woollen string. Length 3".

T. XLI. f. 018. Fr. of cotton canvas. Length 4".

T. XLI. f. 019. Fr. of silk waste.

T. XLI. f. 020, 021. Frs. of pottery. *020.* Very fine texture, pale red; partially glazed on both sides but glaze perished. 1⅜" × 1" × $\frac{5}{16}$". *021.* Coarser ware; part of rim, prismatic section. Red surface, grey inside. 2" × 1½" × ⅜".

T. XLI. f. 022. Fr. of iron; rough, very oxydized cast iron. 2⅛" × 1⅛" × $\frac{7}{16}$".

T. XLI. f. 023. Iron nail; flat, with wide-spreading head. 1$\frac{3}{16}$" × ⅜" (head) × $\frac{3}{16}$".

T. XLI. f. 024. Fr. of iron bar; square section. 1¼" × ⅜".

T. XLI. f. 025. Bronze ball. Diam. $\frac{5}{16}$".

T. XLI. f. 026. Frs. of two green glass beads. *07* irregular, pale. ⅜" × ⅜" × ¼". 09 annular, darker green; chipped. Diam. $\frac{5}{16}$", thickness ⅛".

T. XLI. f. 027. Bronze wire ring; split. Diam. $\frac{5}{16}$".

OBJECTS FOUND AT RUINED STRUCTURES T. XLI. g

T. XLI. g. 01. Fr. of base of porcelain bowl. Thick greyish-white, very fine quality, with ring-base (chipped) and two faint blue annular lines on bottom within ring. Coated with very fine glaze (?) which has lost its original polish by fine erosion. Gr. M. 2¼", average thickness $\frac{3}{16}$".

T. XLI. g. 02–4. Three frs. of base of porcelain bowl (joining). Ring-base. Hard pale grey body, covered each side with celadon (?) glaze of soft greyish-green, now dulled by fine erosion or atmospheric action. Bottom within ring-base only partially glazed. 02 and 04 show signs at edge of blue decoration under glaze. Gr. M. (joined) 3¼", diam. of base 2⅜", average thickness ¼". Pl. XLVIII.

T. XLI. g. 05–6. Two frs. of porcelain bowls, with ring-foot, and under glaze decoration in dark blue. Same ware and ornamentation as T. XLIII. l. 09 (*q. v.*). 05 shows part of bottom and foot, 06 lower part of side of different bowl. 05. H. 1$\frac{7}{16}$", length 2¾", thickness of wall ⅛".

T. XLI. g. 07–21. Fifteen frs. of porcelain, prob. from different bowl. Hard white body, covered each side with pale bluish-white glaze, and decorated with leaves and flowers in dark blue under the glaze. Same ware and type of ornament as *Ser.* iv. Pl. IV, T. XI. 001, &c.

09 shows fr. of ring-foot, 07 of plain slightly everted rim. 07 and 014 show each small rivet-hole, not pierced through. 011–13, 016, and 020 are of clearer colouring than the others and perhaps belong to different bowl. The last shows claw of a dragon or bird. Gr. M. 1¾", average thickness ⅛".

T. XLI. g. 022–3. Two frs. of pottery; grey, well washed, mat-marked on outside. Hard but worn. Gr. M. 2¼", thickness ⅜".

T. XLI. g. 024–5. Two frs. of glazed pottery. Hard coarse body, grey, ill washed; spongy glaze each side of brownish black, somewhat perished. Gr. M. 2½", thickness ⅜".

T. XLI. g. 026. Fr. of pottery; grey, eroded. Perhaps belonging to T. XLI. g. 022–3. Gr. M. 1⅜", thickness $\frac{5}{16}$".

T. XLI. g. 027. Fr. of base of stoneware vessel. Ring-foot. Hard pinkish-buff, unglazed. H. ⅞", gr. length 2¼", average thickness ⅜".

T. XLI. g. 028–31. Four frs. of glazed pottery jar or vase, with handle. Body of buff clay, retaining a good deal of grit; glaze each side, slightly frizzled, streaky brown and black intermingling. 029 and 030 (joining) show shoulder turning very slightly in before short wide neck, and plain short rim turned out at angle of about 45°. Upper surface of rim unglazed. 031 shows shoulder, with base of straight handle, corrugated vertically on outside. 028, fr. from turn of handle (?) at top. For fr. of similar vase, see T. XLIII. l. 015. Gr. M. 2¼", thickness ¼". Pl. XLVIII.

T. XLI. g. 032. Small bronze ring; elliptical, ends only roughly joined. Gr. diam. $\frac{7}{16}$", thickness of wire $\frac{1}{16}$".

T. XLI. g. 033. Remains of iron hook; oblong in section, much corroded. Length 1$\frac{3}{16}$", width ¼".

OBJECTS EXCAVATED AT WATCH-POST T. XLI. I

T. XLI. i. 01. Fr. of porcelain; lower part of bowl, white, thinner and more finely modelled than T. XLI. i. 02, coated with pale green glaze. Ring-foot is ¼" deep and thin with finely rounded edge. Portion of body rising from foot has 6 rivet-holes, not pierced through.

On bottom, outside, within a double circle Chinese characters enclosed in square. Inside, painted pattern in dark blue, of fine lines with bold washes of colour over. One small trace of pattern outside. Type similar to T. XLIII. l. 010. Aver. thickness *c.* ⅛". 3" × 2¼". Pl. XLVIII.

T. XLI. i. 02. Fr. of porcelain; lower part of bowl, exactly similar to T. XLIII. l. 09. 3½" × 2". Pl. XLVIII.

T. XLI. i. 03. Stick. Natural curved branch roughly thinned, leaving thick-knotted end. A drumstick or 'knobkerry'; prob. apple wood. 15¼" × ⅞". Thick end 2¼" × 1½". Pl. XLVI.

T. XLI. i. 04. Wooden spatula, roughly cut. 6⅞" × ⅝".

T. XLI. i. 05. Wooden slip, broken at one end; surface partly chiselled away on one side. 6¼" × ⅝" × ¼" (full).

T. XLI. i. 06. Part of wooden trap. Irreg. ring of twisted grass in which are bound pointed strips of wood on the inner side, their points converging to centre. Prob. from trap for game; as *Ser.* ii. p. 782; iv. Pl. LIV, T. XV. a. i. 009. [Regarding use of trap, cf. note of Mr. H. Balfour in *Add. & Corr.*] Diam. *c.* 6". Pl. XLVI.

T. XLI. i. 08. Fr. of wooden mat or 'chick'; woven like cloth, the warp of string, and the weft of even, round twigs used double. Twigs were prob. soaked in water for weaving, as although now very hard, they bend to the string warp which has left a sharp impression on them. String extremely strong. Cf. T. XLIII. j. 04. 2⅞" × 3⅞".

T. XLI. i. 09. Fr. of strong canvas. 10" × 7½".

T. XLI. i. 010. Fr. of pottery; from bottom of flat-bottomed vessel with portion of outward-sloping side. Red discoloured to grey in parts; unglazed. Part of large hole in centre and two others r. and l. nearer to side, clean cut before firing. Part of small hole near one edge. 4⅛" × 5¼" × $\frac{7}{16}$".

OBJECTS FOUND AT WATCH-STATIONS T. XLI. JJ, K, L, N

T. XLI. jj. 01. Fr. of pottery; from side of common red vessel. Eroded surface, ribbed horizontally. 2⅛" × 1⅜" × ⅛".

T. XLI. k. 01. Fr. of pottery; mouth and part of shoulder of dark-grey unglazed jar. Rim prismatic in section, one edge up, one presented outward. Sharp inward dip to short neck and abrupt outward-spreading shoulder, from which body inclines sharply down and slightly outward. Well-washed clay. Diam. of mouth 2⅜"; diam. of shoulder *c.* 4½". Pl. XLVIII.

T. XLI. l. 01. Bronze stud, with two pointed pins at back for fastening to cloth or other soft material, bent over. Design: palmette; two leaves R. and L. with rosette between enclosed by pointed arched raised edge. A flat knob in each spandril. Well made. 1¼" × ½".

T. XLI. l. 02. Iron rod, of flattened square section; curved. 2¼" × 3/16" × ⅛".

T. XLI. n. 01. Iron arrow-head; hollow-sided, three blades. Corroded and thickly encrusted with oxidization. 1¼" × 5/16".

T. XLI. n. 02. Bronze disc, with raised rib at back. Roughly made. 1" × 1⅛" × ⅛".

T. XLI. n. 03. Fr. of lead wire; twisted. 1 3/16" × ⅛".

T. XLI. n. 04. Bronze nozzle. Hollow tube-shaped like mouth-piece of blowpipe. 1¼" × 5/16".

OBJECTS FOUND AT WATCH-STATIONS T. XLI. O, T. XLI. R

T. XLI. o. 01–4. Frs. of bottom of four porcelain bowls. Same type of ware and decoration as T. XLIII. l. 09 (*q.v.*) and *Ser.* iv. Pl. IV, T. XI. 001. White body, except 03 (light grey). Ring-foot to all, and bottom glazed inside ring.

01. Orn. double blue ring under bottom, within ring, and Chin. char. Glaze almost white. *02.* Orn. on bottom, within ring, as 01, but different char. On outside, round top of base-ring double blue line; above, trace of floral orn. Three rivet-holes, not pierced through. In centre of bottom, inside, plant with berries or buds, within wide double circle. *03.* Pattern identical with that of T. XLIII. l. 09, &c.; to it prob. belongs T. XLI. o. 05–6. *04.* Thinner and finer ware than any of the preceding. Outside, within ring-foot, double blue line and fr. of Chin. char.; at spring of wall, double blue circle; at centre (inside), flower spray and trace of blue circle at edge. On wall, outside, five small rivet-holes not pierced through.

Gr. fr. (*02*), h. 1¼", diam. of ring-foot 2¾", thickness of wall ⅛", Gr. M. 3¾". Pl. XLVIII.

T. XLI. o. 05–6. Two frs. of porcelain, with bluish-white glaze, and under-glaze decoration in blue. Prob. part of T. XLI. o. 03; 05 being from lower part of wall from just above ring-foot, and showing continuation of same design as on 03, while 06 (from wall) is of exactly same ware and tint, and shows flower of same type. Gr. M. 2", thickness of all ⅛". Pl. XLVIII.

T. XLI. o. 07. Fr. of porcelain, same ware as the preceding. Shows outside, bands and leaves (?) in blue; and inside, double blue ring and leaves. Gr. M. 2", thickness ⅛".

T. XLI. o. 08. Fr. of porcelain; body pure white and of fine texture; glaze thin, even, very bright, without crackle and of pale starch blue. Design, arabesque scrolls in fine blue lines, on outside only. Gr. M. 1¾", thickness ⅛".

T. XLI. o. 09. Fr. of glazed stoneware, from strongly convex shoulder or wall of vessel. Body hard greyish-buff; glaze each side, fine brown-black. Gr. M. 2¼", thickness 5/16".

T. XLI. o. 010. Fr. of stoneware; flat, from base of vessel. Buff, with five spots of frizzled brown glaze upon one side. Gr. M. 1¾", thickness 5/16". Pl. XLVIII.

T. XLI. r. 02. Fr. of bronze plate; curved. Plain. 1½" × ¾".

OBJECTS FOUND AT WATCH-TOWER T. XLII. E

T. XLII. e. 01. Fr. of porcelain; part of wall and slightly out-turned rim of bowl, of pattern identical with T. XLIII. l. 08, but more carefully painted. Pale greenish glaze, bright, uncrazed and only slightly pitted. 2¼" × 2¼". Pl. XLVIII.

T. XLII. e. 02. Shoe, man's; with string sole, turned up toe; upper covered with strong blue fabric of fine texture, over a coarser blue canvas. The stiffening is formed by layers of white canvas, and edge is oversewn with a kind of close herring-bone stitch forming a braid-like binding. An interlaced braid scroll ornaments top of toe. 10½" × 4". Pl. XLVI.

OBJECTS FOUND OR EXCAVATED AT WATCH-STATIONS OF LIMES SECTION T. XLIII

T. XLIII. 01. Arrow, cane; part of shaft and butt. Notch very deep and made of separate thicker piece. Remains of feather and black lacquer for binding. Other end burnt. 11¾" × 5/16". Pl. XLVII.

T. XLIII. 02. Fr. of pottery; from wall of bowl. Fine porcelainous grey body, covered both sides with deep rich brown glaze, appearing black where thick, and showing sulphured effect. 1¼" × 1¼" × ⅛".

OBJECTS FOUND OR EXCAVATED AT WATCH-TOWERS T. XLIII. A–C, T. XLIII. E

T. XLIII. a. 01–4. Frs. of wooden slips, uninscribed. Longest 7¼".

T. XLIII. a. 05. Wooden stylus; double-ended, with centre (handle) of square section, across which are transverse black bands in ink. Roughly made. 9½" × ⅜" sq. Pl. XLVII.

T. XLIII. a. 06. Frs. of woollen rug, dyed green. Largest piece 7" × 6½".

T. XLIII. a. 08. Wooden dowel, slightly tapering; square. 3¾" × ⅜" × ⅜".

T. XLIII. a. 09. Fr. of hard felt, with holes from sewing (?). 9½" × 5".

T. XLIII. a. 010. Wooden seal-case with three saw cuts for strings, as *Ser.* iv. Pl. LIII, T. XIX. ii. 001. 1⅜" × 1⅛" × 5/16". Cavity 11/16" × 9/16".

T. XLIII. a. i. 01–2. Fr. of pottery, grey; from lip and side of large vessel. Rim broad, at right angles to side; small rivet (?) hole near one end. Two pieces now joined. 10" × 3" × 5/16". Width of rim 1 5/16". Pl. XLVIII.

T. XLIII. b. 01–7. Frs. of pottery, from one or more bowls; fine porcelainous frit, glazed both sides pale warm grey. Largest piece 3¼" × 2⅛".

T. XLIII. b. 08. Wooden square prism, one end pyramidal. Painted black; cf. T. XLIII. h. 011. 1⅜" × ⅜" × ⅜".

T. XLIII. c. 01. Fr. of pottery: from flat bottom of vessel; slightly raised broad foot. Badly washed paste, glazed dark greenish-brown inside. 5⅜" × 4⅝" × ⅜".

T. XLIII. e. 01. Fr. of pottery. Hollow bar, square section with upper surface chamfered into three irreg. sides of octagon. Use uncertain. Dark grey throughout and very hard. 4⅜" × 2⅛" × 1⅜". Thickness *c.* ¼".

OBJECTS FOUND OR EXCAVATED AT WATCH-TOWER T. XLIII. G

T. XLIII. g. 01. Fr. of pottery; dark red, coloured black on surface. Part of rim of bowl. Fine and hard. 2" × 1¾" × ⅜".

T. XLIII. g. 02. Fr. of pottery: fine red; grey-black surface, with close string pattern all over outside. 2¼" × 1¾" × ¼".

T. XLIII. g. 04. Fr. of bronze mirror. Narrow cable border lines within broad, flat, thickened rim. Fine smooth patina. 1¼" × ¾".

T. XLIII. g. 05–13. Frs. of bronze, of various sizes and shapes. Largest 1¼" × 13/16" × 1/16".

T. XLIII. g. 014. Bronze arrow-head; triangular; hollow sides, barbed; bronze tang. Cf. Lal S. 015. 1⅜" × 7/16". Pl. XLVII.

T. XLIII. g. 015. Bronze arrow-head, triangular, flat-sided, no barbs; cf. L. J. 01. Corroded at lower end. 1" × ⅜".

T. XLIII. g. 021. Thin head of grass, tied round with string of same at half-length; perhaps for brush. Cf. T. XXII. e. 013. Length 10¼", gr. thickness ⅜".

T. XLIII. g. 022–4. Frs. of three wooden writing-slips: blank. Wood hard, but bleached. Gr. fr. (*022*) 7 13/16" × 7/16" × ⅛".

T. XLIII. g. 030. Wooden writing-slip; blank, good condition. 9¼" × 7/16" × 3/16".

OBJECTS EXCAVATED AT WATCH-STATION T. XLIII. H

T. XLIII. h. 02. Fr. of wood; originally rectangular in section, cut into oblong billets on one face. Billets approx. 2¾" × 1". Interval 1⅛" long × ⅜" deep. Split and perished. Broken at both ends. 9¼" × 1" × ⅜".

T. XLIII. h. 03. Wooden handle, of awl (?) or drill. Short, thick, straight and round; roughly tapered at drill end, and rounded at butt. Hard wood. 3¼" × 1¼".

T. XLIII. h. 04. String shoe; strongly woven in one piece. Under-side of sole presents evenly knobbed surface. Good work. As *Ser.* iv. Pl. LIV, T. XV. 006. 9¼" × 3⅜".

T. XLIII. h. 05. Fr. of woven string fabric, with very strong loops projecting from edge at intervals of about 5". Probably mat for covering loads on ponies, or for some similar purpose. Close warp; weft 'wrapped-twined' at intervals of about ⅜". 18" × 8".

T. XLIII. h. 06. Fr. of paper. Torn, tough, and plain. 4" × 4".

T. XLIII. h. 07. Fr. of plain cloth; cotton, strongly woven. 9¼" × 2¼".

T. XLIII. h. 08. Fr. of plain cloth, loosely woven; woollen; buff. c. 2½" × 1".

T. XLIII. h. 09. Fr. of silk waste.

T. XLIII. h. 010. Fr. of wood; small rectangular billet, hard and roughly shaped; broken at one end, and roughly chamfered at other. Plain. 4⅛" × ⅜" × ⅜".

T. XLIII. h. 011. Wooden square prism, plain, with one end pyramidal. Chessman (?). Cf. T. XLIII. b. 08. 1⅜" × ⅜" × ⅜".

T. XLIII. h. 012. Iron hoe (?) blade, hollow for fitting to shaft; wedge-shaped. Oxydized. Cf. *Ser.* iv. Pl. LIV, T. XV. 0010. 2⅜" × 2⅜" × 1" at broad side.

T. XLIII. h. 013. Wooden peg, rough, pointed one end, with roughly drawn grotesque face at square end on one side. Cf. above, T. XXII. d. 027, Pl. XLVII; *Ser.* iv. Pl. LII, T. VI. b. i. 002. 7⅜" × 2⅜" × ⅜".

T. XLIII. h. 014. Wooden spoon: roughly made. Bowl in same line as handle, but concavo-convex. Rounded back continued up handle, which is flat on other three sides. Handle merges into bowl in hollow curved shoulders, and at opposite end is shaped into abrupt hook for suspension. Lip of bowl broken away. 6" × 2" (bowl). Pl. XLVII.

T. XLIII. h. 015. Wooden writing-slip; blank. 9" × ⅜" × ⅛".

OBJECTS EXCAVATED AT WATCH-TOWER T. XLIII. I

T. XLIII. i. 01. Wooden spatula, roughly cut, slightly concave end to end. Flat at back of blade which thins towards lip; thickened at handle. Shape tapers laterally, gradually from broad end of blade to wedge-shape point of handle; cf. T. XXIII. a. 07. 6¼" × 1⅜" × ⅜" at thickest.

T. XLIII. i. 02. Fr. of wooden saddle-tree (?); naturally curved and cut knee-shaped with shouldered mortice cut through near one end which is thinned to wedge shape. Hard and heavy. Charred at thick end. 9¼" × 2½" × 1⅝".

T. XLIII. i. 03. Wooden writing slip. Surface charred; broken at one end. Plain. 9" × ⅝" × 3/16".

T. XLIII. i. 04. Fr. of cane (?), with traces of perished lacquer. 8" × ½" × ¼".

T. XLIII. i. 06. Wooden seal-case with three grooves for string; as *Ser.* iv. Pl. LIII, T. XIX. ii. 001. 2¾" × 1¼" × ⅞". Pl. XLVII.

T. XLIII. i. 07. Fr. of iron implement. Hollow, wedge-shaped curved keel, broadened at one end, where the two wings of wedge are turned outward at approx. right angles to surface. Both ends broken. 6¼" × 1 3/16" to 2¼" at turned up portion; back of wedge ¾"; solid edge 3/16". Pl. XLVII.

T. XLIII. i. 08. Specimen of oats.

T. XLIII. i. 019. Wooden needle (?), unfinished. Long straight pin, tapered to fine point, with flat oval head, unpierced. Length 4½", gr. width ⅜".

T. XLIII. i. 020–2. Three frs. of wooden writing-slips (020 in two pieces). Charred, effaced. Gr. M. 3¾" × ⅞".

OBJECTS EXCAVATED AT WATCH-TOWER T. XLIII. J

T. XLIII. j. 01. Wooden peg; roughly cut spindle of approx. even thickness, supporting at upper end a geometrically carved head. Face broad oval, pointed at chin, keel shape. Minute depressions R. and L. of keel near lower end, for nostrils; cross cut for mouth. Straight eyes very high and widely spaced, painted in black. Rounded at back.

Hair rises in tall black coiffure bent forward in kind of hood (broken), the back of which is chamfered flat, recalling head-dress in Han sculptures of the Wou Leang Ts'ëu tombs, cf. Chavannes, *Mission archéologique*. Black hair down sides of face. Sides show bark of twig.

Head resembles, on a small scale, the example given in Chavannes, *Mission archéologique*, Pl. CCCLXXXI, No. 815, described as 'génie protecteur des routes en Corée', and perhaps serving a similar purpose in household worship. The object of the tent-peg-like stakes, shown in *Ser.* iv. Pl. LII, T. VI. b. i. 002–4, and others in this collection, may perhaps also be similarly explained. 5¼" × 1¼" × ⅞". Pl. XLVII.

T. XLIII. j. 02. Wooden heel-piece of shoe last, grooved down back, slightly diminishing at top. Scratches made by awl or needle round edges on bottom. 2½" × 2¼" × 1½". Pl. XLVI.

T. XLIII. j. 03. Fr. of wooden bowl; bottom with broad ring-foot; slit in centre, plugged with slip of wood. Sides burnt away. Diam. 5½". Thickness 1" nearly. Pl. XLVI.

T. XLIII. j. 04. Fr. of basket-work mat, of same material and structure as T. XLI. i. 08. Thick twigs are plaited single, thin ones double. Weaving very close and firm. Circular. Diam. c. 12". Pl. XLVI.

OBJECTS EXCAVATED AT WATCH-TOWER T. XLIII. K

T. XLIII. k. 01. Block of wood; oblong with wedges notched like modern key-wards. Rounded at one end and square at other. Roughly made and broken away at one side. 4½" × 1¼" × ¾". Pl. XLVII.

T. XLIII. k. 02. Fr. of wood; broken and perished slip, one edge partly notched into saw-tooth form. Traces of ink-marks on both broad sides; cf. T. XXIII. a. 08. 4" × ⅜" × 5/16".

T. XLIII. k. 03. Wooden comb, with rather widely cut teeth and segmental back. One side broken away. 3¼" × 2¼". Pl. XLVII.

T. XLIII. k. 04, 05. Frs. of lacquered wooden bowl, similar to T. XLIII. k. 07. Red inside, black outside. 3" × ¾", 3¾" × ⅞".

T. XLIII. k. 06. Fr. of lacquered wooden bowl, similar to T. XLIII. k. 07. Lug and portion of side. Red inside; lug black. Outside black with red splashes on lug. 4⅞" × 1½".

T. XLIII. k. 07. Fr. of lacquered wooden bowl, elliptical form, with bold projecting lugs for handles at long sides. Red inside, black outside. One side broken away; much weathered. 6¼" × 2¼".

T. XLIII. k. 08. Fr. of wooden disc; circular, in two pieces, has been cut away at edges in several places. Remains of black (?) paint or lacquer which has been applied by a mechanical circular motion. Diam. 5 5/16" × ¼".

T. XLIII. k. 010. Wooden spatula (?), similar to T. XLIII. k. 011, but more roughly shaped and the angular sides slightly curved. No notch. Traces of black on one side, and pink distemper on other. Worm-eaten. 5¾" × 1⅛" × 3/16". Pl. XLVI.

T. XLIII. k. 011. Wooden spatula (?). Thin flat oblong, rounded at one end, cut to angular point at other, with large notch cut in one side of angle. Broken at round end and split. 4" × 1¾" × ⅛".

T. XLIII. k. 012. Wooden spatula. Long handle and rectangular flat 'bowl', roughly rounded at end and with sloping shoulders joining to flat handle. Roughly made. 7½" × ⅞" × ⅛".

T. XLIII. k. 013. Wooden stylus or brush handle; round and tapering with opposite end roughly flattened. 6¼" × 5/16".

T. XLIII. k. 014. Wooden spatula similar to T. XLIII. k. 012, but more carefully made. Edges of blade on one surface chamfered, and handle round. 6¼" × 1" × ⅛".

T. XLIII. k. 015–17. Wooden writing-slips, broken and blank. 10¾" × ½" × ⅛". 5¼" × ½" × ⅛". 6¾" × ⅝" × ⅛".

T. XLIII. k. 018. Fr. of wooden writing-slip, with traces of Chinese characters. Perished. 7¼" × 5/16" × 3/16".

T. XLIII. k. 019. Fr. of wood: prismatic section, plain. Angles trimmed off at one end (broken). 2¾" × ¾" × ¾".

T. XLIII. k. 020–2. Frs. of wooden writing-slips, plain, all broken. Largest 4¼" × 7/16" × ⅛".

T. XLIII. k. 023. Wooden spatula, broad at blade end and tapering to other, which is rounded. Slightly curved both laterally and longitudinally. 7⅛" × 1" (blade).

T. XLIII. k. 024. Wooden writing-slip, pointed at one end. 5¼" × ⅝" × 3/16".

T. XLIII. k. 025. Wooden peg, prismatic, sharpened at one end. Grotesque face in black outline at broad end. Cf. T. XLIII. j. 01, and *Ser.* iv. Pl. LII, T. VI. b. i. 003. 5¼" × 1¼" × ⅞".

T. XLIII. k. 026. Wooden lug or handle, of lacquered elliptical bowl. Inside red; lug and outside black with pattern in red lines consisting of border lines, chevrons and circles. Each circle has two concentric inner circles and a central dot. These appear to be applied either with a stamp or some other mechanical appliance. Broken and weathered. 4⅜" × 1¾". Pl. XLVII.

T. XLIII. k. 049. Horn seal (?): sq., with rounded back pierced for suspension. Roughly cut; no device. Strong twisted woollen cord through suspension hole. Face ⅞" sq., h. ⅝".

OBJECTS EXCAVATED AT WATCH-STATION T. XLIII. l.

T. XLIII. l. 01. Fr. of pottery: from nearly straight sided vessel. Thickened and slightly out-turned rim; faintly ribbed inside. Very fine clay, buff, glazed with even light brown. 1⅞" × 2" × ⅛".

T. XLIII. l. 02. Fr. of pottery, similar to T. XLIII. l. 03, but band of glaze narrower. 2" × 2½" × ⅛".

T. XLIII. l. 03. Fr. of pottery: from wall of small bowl with simple thickened rim, slightly everted. Porcelainous buff body. Glazed brown inside and out in broad band reaching nearly to bottom. Lower part unglazed. Constituents of glaze seem to have partially separated after application, resulting in a mottled and streaked effect, of liver brown, dark green and black. Very hard. 2¾" × 2¼" × ⅛".

T. XLIII. l. 04. Fr. of base of glazed pottery bowl, with ring-foot. Body fine, hard, grey, with black glaze which stops at edge of flat bottom on inside, and ¾" short of base outside. Outside lightly ribbed, horizontally. Gr. M. 2½", thickness of wall *c.* ¼".

T. XLIII. l. 05. Fr. of glazed pottery bowl, like preceding, but reddish with dark green-brown glaze. Gr. M. 2", thickness of wall 3/16". Pl. XLVIII.

T. XLIII. l. 06–9. Four frs. of porcelain bowl, with ring-foot. Hard pale-grey body, covered each side with bluish-white glaze; under-glaze floral decoration in dark blue. For similar ware, see *Ser.* ii. p. 773, T. XI. 002, &c.; and for similar ware and decoration, *Ser.* iv. Pl. IV, T. XI. 001; So. 0051.

09 (largest fr.) shows bottom orn. inside with flower composed of thin stamen-like lines radiating from centre, and ending each in long drop-shaped blob. Round outside of flower, pairs of thick scrolls or voluted leaves, and long smudge (accidental). Whole contained within fine double annular line running round inside of bowl. Outside shows (in 06 and 09), above, lower part of flower like that inside; below, thick broken lines or dashes running horizontally round bowl, and faint line round junction with foot. Under-side of base, within ring-foot, glazed pale-grey with brown circle under glaze.

07 and *08* (frs. of wall with plain slightly out-turned rim) show on outside, at top, thick festoon (?) band, from which hang flowers like the above described, with thick horizontal lines below. Inside rim, series of elliptical blobs above faint double annular line. Then plain glaze down to beginning of pattern on bottom.

For other frs. of bowls of precisely same ware and decoration, see T. XLI. g. 05–6; i. 01–2; o. 03, 05–7; XLII. c. 01; and for other pieces mostly of slightly finer ware, or different decoration, but of same type, T. XXIII. d. 010–13; XLI. g. 07–21; o. 01–2, 04; XLIII. l. 010.

Diam. of base was 2¾", h. of bowl *c.* 2¾", diam. of mouth *c.* 4¾". Gr. fr. (09) 3¾" × (h.) 1¾"; average thickness between ⅛" and 3/16". Pl. XLVIII.

T. XLIII. l. 010. Fr. of porcelain: from plain rim of bowl. Thin white body, with bluish-white glaze, and under-glaze leaf (&c.) decoration in blue. Similar to T. XLI. i. 01, and T. XLI. g. 011, 020. Gr. M. 1¾", thickness (without glaze) 1/16".

T. XLIII. l. 011. Wooden spatula, with very short straight handle. Roughly cut, flat. Blade 1¾" × ¾", length of handle ¾".

T. XLIII. l. 012. Fr. of woollen (?) braid: light buff, strongly woven. 4¾" × 1".

T. XLIII. l. 013–14. Two frs. of woollen (?) fabric; fine, plain. *013* dyed greenish-blue, *014* (irregularly) indigo blue. Gr. fr. 6¾" × 3¾".

T. XLIII. l. 015. Fr. of glazed pottery jar (in two pieces) showing plain rim (unglazed on top), and long loop handle. Neck and body of jar almost on same plane. Handle very slightly projecting; flat ellipse in section, wide at top and narrowing towards bottom, corrugated vertically on outer side. Body gritty, buff; glaze each side, brownish black. For fr. of similar jar, see T. XLI. g. 028–31. H. 4¾", width 4". Pl. XLVIII.

OBJECTS EXCAVATED AT WATCH-TOWER T. XLIV. A

T. XLIV. a. 01. Fr. of edge of grass mat; roughly woven. 12" × 3½".

T. XLIV. a. 03. Fr. of wooden stick, hard and heavy; split down centre (other half missing). Whittled surface. One end charred, other end shaped but incomplete. 18" from charred end, four Chinese characters written in ink. 26½" × 1¾" × ⅝". Pl. XLVI.

T. XLIV. a. 04. Wooden spatula: broad and thin. Similar to T. XLIV. b. 035, but complete, with handle tapering and cut to chisel point. 8¼" × 1½" × $\frac{3}{16}$".

T. XLIV. a. 05. Wooden object of hammer-head shape; slightly tapering one way towards ends, but actual 'panes' shouldered out to full width; hole through centre. 3⅜" × 1¼" × 1⅛". Pl. XLVII.

T. XLIV. a. 06. Fr. of wooden spatula; handle broken. Similar to T. XXIII. a. 07. 4⅜" × 1¼".

T. XLIV. a. 07. Wooden wedge-shaped object, cut round at thick end. 1⅞" × ⅞" × ⅞".

T. XLIV. a. 08. Wooden peg: small and tapering with groove ⅛" from thick end containing string. Cf. *Ser.* iv. Pl. XXXV, L.A. v. ii. 1. 3" × ½".

T. XLIV. a. 09. Bag of strainer, made of plaited horse-hair 2¼" × 6". Pl. XLVII.

T. XLIV. a. 010, 011. Frs. of canvas; coarse and strong. Larger 5½" × 2½".

T. XLIV. a. 012. Fr. of leather shoe sole, showing leather stitching at edge. 4⅛" × 3⅜".

T. XLIV. a. 013. Fr. of pottery, from bottom of vessel, in black pottery, sides faceted, as in T. XLI. c. 03. Inside very regularly moulded into low relief spiral. Diam. 4¼". Pl. XLVIII.

T. XLIV. a. 015. Bronze arrow-head, three-sided, flat; as *Ser.* iv. Pl. LIII, T. XII. a. i. 005. 1" × ⅜". Pl. XLVII.

OBJECTS EXCAVATED AT WATCH-TOWER T. XLIV. B

T. XLIV. b. 01, 05. Two square wooden prisms; the large surfaces divided by two diagonals and a short diameter in ink, with a dot in each end division. One end of one blackened. *01*, 1⅛" × $\frac{9}{16}$" × ⅜"; 05, 1¼" × ⅜" × $\frac{5}{16}$". Pl. XLVII.

T. XLIV. b. 02. Wooden spatula, similar to T. XLIII. k. 011, but narrower, and the angular end more elongated. Chamfered on the long edges of one surface. 4" × 1" × ⅛".

T. XLIV. b. 03. Fr. of wooden slip; rectangular, split into two pieces, broken away at one end and partly at other. Traces of Chinese character at partly broken end. Reverse, large dab of black ink. 1⅛" × 5¼" × $\frac{3}{16}$".

T. XLIV. b. 04, 06. Two square wooden prisms with one end pyramidal, of fine-grained light wood. Roughly made, perhaps 'chessmen'. Cf. T. XLIII. b. 08. 1⅛" × ⅞" × ⅞"; 1" × $\frac{13}{16}$" × $\frac{13}{16}$". Pl. XLVII.

T. XLIV. b. 07–9. Frs. of wood. *07.* Round stick, broken away at one end. Perhaps eating-stick. 5$\frac{7}{16}$" × ¼". *08.* Roughly rounded stick, partly squared at one end. 4⅜" × ⅜". *09.* Round stopper-like object, flattened at one side from end to end, and partly flattened on opposite side. Diameter diminished by shoulder 1⅛" from thick end. 1⅜" × ⅝" to ⅜".

T. XLIV. b. 010. Wooden stylus; flattened, gently tapering and curved slightly in its length. Part of bark remains. 6¼" × $\frac{5}{16}$".

T. XLIV. b. 011. Wooden spatula with broad flat blade, smoothed and slightly rounded. 7⅛" × 1⅛" (blade).

T. XLIV. b. 012. Wooden cover, for mouth of vessel, with chamfered overhanging top, notched for cords. Marks of burning. 4⅜" diam.

T. XLIV. b. 013. Wooden cleat (?). Rectangular, roughly rounded at ends and with roughly squared hole ⅛" × ⅛" near each end. 5⅛" × 1⅛" × ¼".

T. XLIV. b. 014. Wooden wedge; rounded at thick end and with remains of black paint. Well made. 2$\frac{1}{16}$" × $\frac{5}{16}$" × ¼".

T. XLIV. b. 015. Pottery jar; wheel-made. Flat-bottomed, sides expanding to shoulder *c.* 5" from bottom, and thence curving in to short straight neck. Straight, slightly thickened rim. Upper part of body faintly ribbed horizontally, as if by finger, and lower part scraped vertically. Remains of hemp cord tied round neck. Much caked with sand, inside and out; part of neck and shoulder broken away. H. 7⅜", diam. of base 3⅛", of mouth 3⅜", gr. (at shoulder) 6⅛". Pl. XXV.

T. XLIV. b. 034. Wooden writing-tablet, unfinished. Raised end for seal cav. sawn across with five grooves for string, but cav. only partly cut out. Other end cut off sq. at length of 3⅛". Under-side unsmoothed. Wood hard. 5⅜" × 1½" × ½" to $\frac{5}{16}$".

T. XLIV. b. 035–6. Two wooden spatulas, very roughly cut. *035* has long broad blade, straight with handle, which is broken off short. *036* spade-shaped blade, slightly curved, and of reddish cedar-like wood. One edge of each blade lost. Gr. length (*036*) 7⅞", gr. width (incomplete) 1⅛".

T. XLIV. b. 037. Wooden counter (?) for game. Small solid block, boat-shaped in outline, each face convex and rising to more or less level ridge, ⅜" long, down middle of face. One face shows shallow groove cut across this ridge, and remains of dark paint. The other has a cross-cut on either side of centre of ridge, another from each end of ridge to

nose of counter, and a pair of slanting lines scored from each end of ridge to edge. Cf. *Ser.* iv. Pl. LIII, T. XVIII. iii. 003. $1\frac{3}{4}$" × (gr. width) $\frac{5}{8}$" × (gr. thickness) $\frac{3}{16}$".

T. XLIV. b. 038. Wooden shuttle (?), with bark on, cut off sq. each end. Towards one end surface shaved down so as to make a shallow notch running round stick $\frac{3}{16}$" from end. Hole pierced through centre of stick from end to end, for spindle (?), and whole of one side cut away for length of 3" in middle, exposing this hole as a hollow channel. Probably never used. Length 5", diam. $\frac{5}{8}$".

OBJECTS EXCAVATED OR FOUND AT WATCH-STATION T. XLIV. C

T. XLIV. c. 01. Wooden fire-stick, 'female', one long edge broken, the other with seven holes about $\frac{5}{8}$" apart (centre to centre) drilled at extreme edge. A $2\frac{1}{4}$" square sunk portion cut out at one corner, in which is small hole containing wooden dowel. Surfaces adze-cut. Pink stain on edge at holes. Cf. Joyce, in *Man*, xi. 3, 24; *Ser.* i. pp. 233 sq. $9\frac{1}{2}$" × 5" × $1\frac{1}{4}$".

T. XLIV. c. 03, 05. Bronze arrow-heads, as *Ser.* iv. Pl. LIII, T. XIV. a. 007. One broken at point. $1\frac{3}{4}$" × $\frac{5}{8}$". Pl. XLVII.

T. XLIV. c. 04, 07. Frs. of bronze sheet. Larger $1\frac{13}{16}$" × $\frac{5}{8}$".

OBJECTS EXCAVATED AT WATCH-TOWER T. XLIV. D

T. XLIV. d. 01. Frs. of silk, three; dark grey, finely woven. Largest, sewn into tubular form; very ragged. 12" × 19".

T. XLIV. d. 02. Bronze arrow-head, as *Ser.* iv. Pl. LIII, T. XII. a. I. 005. Slight depressions on two faces, prob. faults in casting. $1\frac{3}{4}$" × $\frac{5}{16}$". Pl. XLVII.

T. XLIV. d. 016. Iron gouge, made of rod; one end curled upon itself to form loop; other flattened chisel shape and depressed in slight curve. Rusted. Length $3\frac{3}{8}$", thickness *c.* $\frac{1}{4}$". Pl. XLVII.

OBJECTS FOUND AT HERDSMEN'S STATION, T. XLIV. E

T. XLIV. e. 01. Fr. of pottery; from rim and wall of bowl. Buff body, unglazed. Rim carefully smoothed. $2\frac{1}{4}$" × 2" × $\frac{3}{16}$".

T. XLIV. e. 02. Fr. of pottery; from wall of bowl. Fine buff body; partly glazed pale buff inside. $2\frac{1}{2}$" × $1\frac{5}{8}$" × $\frac{3}{16}$".

T. XLIV. e. 03. Fr. of pottery; from wall of vessel. Well-washed buff body, glazed dark brown on outside. Faintly ribbed horizontally outside. $2\frac{5}{8}$" × $1\frac{5}{8}$" × $\frac{1}{4}$".

T. XLIV. e. 04. Fr. of pottery; from rim and wall of bowl. Grey-buff body, glazed all over dark greenish-brown. $1\frac{3}{4}$" × $1\frac{1}{2}$" × $\frac{3}{8}$".

OBJECTS EXCAVATED AT WATCH-TOWERS T. XLVI. B, C

T. XLVI. b. 01. Wooden stick, sq. in section, roughly pointed at one end, broken at other. $4\frac{1}{4}$" × $\frac{5}{8}$" sq.

T. XLVI. b. 02. Wooden stick; bark removed except at one end, which is roughly cut down; other end broken. Length 9", thickness $\frac{1}{2}$".

T. XLVI. b. 03. Fr. of pottery, coarse; grey surface, red inside, 'mat-marked' on outside. Gr. M. $3\frac{3}{4}$", thickness $\frac{5}{16}$".

T. XLVI. c. 01. Stone (?) disc, with hole drilled through centre. Diam. $1\frac{3}{8}$" × $\frac{1}{4}$".

T. XLVI. c. 02. Fr. of pottery; from wall of vessel. Inner surface buff, wiped smooth, with remains of buff glaze. $2\frac{5}{8}$" × $1\frac{5}{8}$" × $\frac{3}{16}$".

T. XLVI. c. 05. Bronze arrow-head, of type L.J. 01. Good condition. Length $1\frac{3}{8}$", gr. width $\frac{5}{8}$".

OBJECTS EXCAVATED AT WATCH-TOWER T. XLVI. H

T. XLVI. h. 01. Wooden comb, with arched back, fine teeth. Broken in two. H. $2\frac{3}{16}$", width $2\frac{1}{4}$".

T. XLVI. h. 02. Canvas, closely twisted in form of two-ply rope burnt at one end. Perhaps used as torch. 9" × $1\frac{3}{8}$". Pl. XLVI.

T. XLVI. h. 03. Fr. of grass matting. Stalks laid side by side, and bound together at intervals of $1\frac{1}{4}$" with string like '*chick*'; cf. T. XXIII. f. 04. $12\frac{5}{8}$" × 8". Pl. XLVII.

T. XLVI. h. 04. Iron knife; slightly curved blade, end cut in straight oblique line from back to edge forming point; short handle or tang with edges doubled over. Edge on concave side of curve. $7\frac{1}{4}$" × $\frac{3}{8}$". Pl. XLVII.

T. XLVI. h. 05. Leather washer with large hole. Diam. $1\frac{3}{8}$".

T. XLVI. h. 06. Lacquered wooden disc, flat one side, convex at other, with simply moulded edge, and hole drilled through centre; coated with red-brown lacquer direct on the wood. Diam. 5" × $\frac{3}{8}$". Pl. XLVI.

T. XLVI. h. 07. Wooden peg; round, smoothly rounded at one end; other end broken and chamfered as though for splicing at sides. Raised annular rib-like cane joint near centre. Hole drilled lengthwise, plugged at rounded end. $2\frac{3}{4}$" × $\frac{3}{8}$".

T. XLVI. h. 08. Fr. of lacquered wooden object; black. Form in section a hollow right angle, one limb slightly curved. Surfaces flat and smooth, with slightly projecting, very delicately cut ridge reserved at edges of curved surface which is broken away. Other edges of straight limb complete, except at inner angle where it is again broken away. Beautifully made. Straight side ¾" × ½", curved side (incomplete) ¾" × 3/16".

T. XLVI. h. 09. Wooden block; rectangular, cleanly cut on all sides. 1" × ¾" × 1/16".

T. XLVI. h. 010. Fr. of wood; oblong, broken away at one end; ⅜" hole drilled through near perfect end, and chamfered down one side. Rough at back, with lateral knife-cuts about region of hole. Piece of woollen yarn with object. 2⅜" × 1" × 3/16".

OBJECTS FOUND AT WATCH-TOWERS T. XLVI. i, j

T. XLVI. i. 01. Fr. of pottery, buff glazed. Yellowish buff inside only, slightly ribbed outside. 2¼" × 1⅜" × ¼".

T. XLVI. j. 01. Bronze arrow-head, of type L. J. 01, with iron tang. Corroded. Length 1¼", gr. width ⅜".

OBJECTS FOUND AT RUINED TOWN SITE T. XLVII, NEAR SHUANG-CH'ÊNG-TZŬ

T. XLVII. 01, 02. Frs. of pottery, light grey with close string-marks; vertical 'stake'-marks on 01, at intervals. Well burnt. Larger 5" × 2¾" × ½". Pl. XLVIII.

T. XLVII. 03–5. Frs. of pottery, grey surfaces, reddish inside; with annular scorings and rough festoon ornament made with multipronged tool. Well burnt. Largest 4" × 2¼" × ¼". Pl. XLVIII.

T. XLVII. 06. Fr. of pottery, brown-grey, covered with basket markings. Well burnt. 1¾" × 1¾" × ¼". Pl. XLVIII.

T. XLVII. 07. Fr. of pottery; from wall of vessel. Plain red, irregular shape; showing wheel markings, pierced in three places as for rivets. 3¾" × 1¼" × ¼". Pl. XLVIII.

T. XLVII. 08, 010. Frs. of pottery (now joined); from bowl in similar material to T. XLVII. 09, but finer paste. Lip very slightly out-turned. 3⅞" × 2¼" × 3/16". For complete bowl, see K.E. x. 01.

T. XLVII. 09. Fr. of pottery; from rim and wall of vessel; buff, partly glazed grey-white. Part of lip present, otherwise broken on all sides. Ribbed as though worked on wheel. 1⅞" × 2¼" × ¼".

T. XLVII. 011. Wooden disc, rough on under-side, convex and smooth on upper; edge rounded. Prob. cover or stopper. Diam. 2¾" × ⅜".

Sh. 01. Fr. of pottery; wheel-made, of dark red clay burning black on each face, fairly fine. Outside orn. with annular band of five to six roughly scratched lines and comb-drawn festoons above and below. Gr. M. 2¼".

Sh. 02. Fr. of pottery; wheel-made, of blackish-grey clay well washed. Outside orn. with shallow annular bands, made with finger or broad round-ended instrument. Gr. M. 1⅝".

Sh. 03. Fr. of pottery; of red clay burnt black on outer face, which is orn. with straight comb-drawn band and parts of two comb-drawn festoons. Single horizontal groove on inner side. Gr. M. 1 13/16".

Sh. 04. Fr. of pottery; light grey clay, fine, hard-fired; orn. outside with two bands of comb-drawn festoons. Gr. M. 2 7/16".

Sh. 05. Fr. of pottery; wheel-made of grey-black clay, well washed; outside orn. with band of six to seven incised lines, and (below) small fine-drawn slanting festoons. Gr. M. 1¾".

Sh. 06. Fr. of pottery; of grey-black clay, 'mat-marked' on outside. Gr. M. 1¼".

CHAPTER XIII

THE ETSIN-GOL DELTA AND THE RUINS OF KHARA-KHOTO

SECTION I.—THE LOWER ETSIN-GOL AND ITS TERMINAL BASIN

My journey down the Etsin-gol was prompted by a twofold interest, geographical and archaeological. The latter made me eager to visit the ruined site of Khara-khoto in the Etsin-gol delta, where Colonel Kozlov, the distinguished Russian explorer, had in 1908 been fortunate enough to make important finds of manuscripts and other remains. Available information indicated that these dated mainly from the period when this ground, together with the greater part of Kan-su, was included in the dominion which the Tangut, a race of Tibetan affinity, under a dynasty known to the Chinese by the name of Hsi-hsia,[1] maintained from the early eleventh century until the conquest of their territory by the Mongols two centuries later. Interest of Khara-khoto site.

But antiquarian interest attached to the Etsin-gol valley also on account of its earlier history. Considering its position and the facilities it must at all times have offered for nomadic inroads from the north, it can scarcely be doubted that just as Chingiz Khān's Mongols advanced by this route to the final conquest of the Tangut kingdom in A.D. 1225, so those earlier northern rulers of the Kan-su marches whom history knows—the Great Yüeh-chih, destined to become later the Indo-Scythian rulers of north-western India; the Hsiung-nu or Huns who drove them westwards in the early part of the second century B.C.; and the Uighur Turks who preceded the Tanguts—had all passed along this natural highway and held its grazing grounds, while their power lasted. We shall see farther on how this role of the Etsin-gol valley is duly reflected in the noteworthy record left by Marco Polo of the route leading past his 'City of Etzina', which has proved to be no other than Khara-khoto.[2] Inroads along Etsin-gol valley.

Equally interesting to me were the geographical aspects of this region. The essential parallelism of the chief natural features led me to hope that the descent of the Etsin-gol to its delta might furnish useful observations for comparison on the one hand with the physical conditions presented by the lower course and terminal basin of the Su-lo-ho, and on the other with those which my explorations suggest as having once prevailed in the delta of the 'Dry River' of Lou-lan, when the ancient Chinese highway into the Tārīm basin still passed through it. Geographic interest of lower Etsin-gol.

It was this special geographical interest that my journey down the Etsin-gol allowed me first to satisfy. And as the observations then made will also help to throw light on certain questions arising in connexion with the remains of the Khara-khoto site and its neighbourhood, a brief record of them may suitably precede the account of the archaeological results there secured. In offering this record as a supplement to what can be gathered from Maps Nos. 44, 45 illustrating our surveys, I must express my regret that I have been unable to consult such descriptive materials as may be furnished by the Russian publications of the distinguished travellers who preceded me

[1] For a lucid and comprehensive account of the history of this dynasty, see Dr. Bushell's paper *The Hsi Hsia dynasty of Tangut, their money and peculiar script*, in the *Journal* of the China Branch of the Royal Asiatic Society, vol. xxx, 1895–6.

[2] Cf. Yule-Cordier, *Marco Polo*, i. pp. 223 sq.; below, pp. 456 sq.

on this ground, MM. Potanin, Obruchev, and Colonel Kozlov and his companions. The route sketches of M. Obruchev and M. Kaznakov, of Colonel Kozlov's expedition of 1899–1901, are on too small a scale to furnish topographical details such as might replace descriptions; but they have proved very useful in supplementing the data about the western portion of the delta.

River-course above head of delta.

The first two marches beyond those outlying defences of Mao-mei took us along a portion of the river-course where the sandy bed, wide but practically undivided throughout, winds between gentle slopes of gravel. That on the west was clearly recognizable as the glacis descending from the south-eastern fringe of the Pei-shan hills. Along this portion of the river-course alluvium was found deposited on either bank only in isolated and comparatively small patches. Rows of fine Toghraks were to be found on most of these from above Ulan-else (Camp 141); but welcome as the growth of scrub and reeds on these patches of fertile soil is to the animals of passing travellers, their extent is far too limited to permit of their use as grazing grounds. The sandy soil of the river-bed, where we crossed it to the right bank at Camp 141, swayed badly under the camels' feet owing to the presence of quicksands. But water was to be found here and farther down only in small pools formed at rare intervals under steeply eroded banks.

Ruined watch-towers.

Near one of those patches of vegetation known as Hsi-wan-tun to the Chinese of Mao-mei and as Sēre to the Mongols, there rose a ruined tower (Fig. 232) presenting some interest. As shown by portions of fallen masonry on the south and east, the original structure built in bricks of 14″ × 8″ × 5″ had been enlarged to 27 feet square at the base by the addition of later masonry showing vertically set bricks of quite a different size, 16″ × 6″ × 3″. Another tower, known as Pei-tun-tzŭ, which was passed about six miles higher up on the right bank, was built of stamped clay and rose in fair preservation to a height of 25 feet. Considering the great distance, over seventeen miles, which separates these towers from T. XLVIII. f and the Ulan-dürüljin fort, it appeared to me rather doubtful whether they could possibly have served as advanced signal posts in connexion with the Limes of Mao-mei. The same remark applies also to a tower raised on a base of clay but built of bricks of the same ancient size of 14″ × 8″ × 5″, which was passed about a mile to the north of Camp 142. It measured 16 feet at its base and rose to a total height of 20 feet.

Approach of Kök-ula hill chain.

Long before we approached the end of the second march at Buk-tokhai (Camp 142), there came into sight the low but boldly serrated hill chain of Kök-ula. It stretches from the north-east towards the river, above which the cairn-marked knoll of Bayin-bogdo (Fig. 229), at the southern end of the chain, rises some five hundred feet. On the opposite side of the river there juts out towards the Kök-ula ridges a broad spur, rising considerably higher, an eastern outlier of one of the Pei-shan ranges which we crossed subsequently on our way to Ming-shui. The two approach near Bayin-bogdo to within five miles of each other, and in the defile thus formed lies the well-defined head of the Etsin-gol delta (Map No. 45. B. 2). Even before we actually reached it, the ground on both sides of the river-bed underwent a marked change. The jungle belt on either hand widened considerably, and the subterranean drainage from which it draws moisture was found to gather in springs, which form open sheets of water within a fine reed-lined basin (Fig. 230).

View at head of Etsin-gol delta.

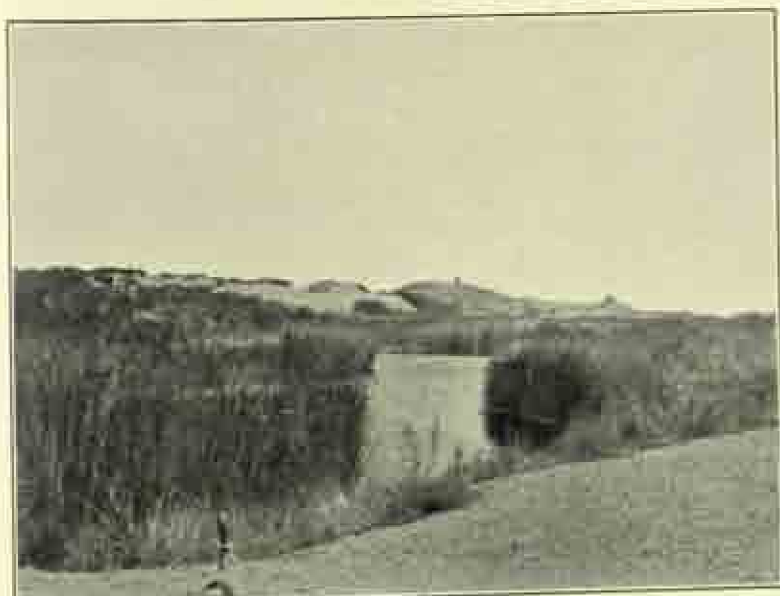
A rocky ridge, the last offshoot of the Bayin-bogdo hill, bars this basin on the north. From its summit crowned by a clay-built tower of uncertain age, a splendid view opened over the head of the Etsina delta (Fig. 231). A mile or so beyond the ridge, the river-bed, which here once more contained a narrow channel of water derived from the above-mentioned springs, broke up into three distinct branches. Between them and to the foot of the receding gravel Sai on either side there spread a wide expanse of luxuriant reed-beds and scrub. Many groves of thick-set Toghraks rose above it, their dark green foliage well set off by the yellowish hue of the reed-beds. All the soil here at the head of the delta was a fine sandy alluvium. Yet nowhere could dune formations be



228. CIRCUMVALLATION, T. XLVIII. a, ON ETSIN-GOL BELOW MAO-MEI.



229. BAYIN-BOGDO HILL AT HEAD OF ETSIN-GOL DELTA.



230. SPRING-FED MARSH AT WEST FOOT OF BAYIN-BOGDO HILL.



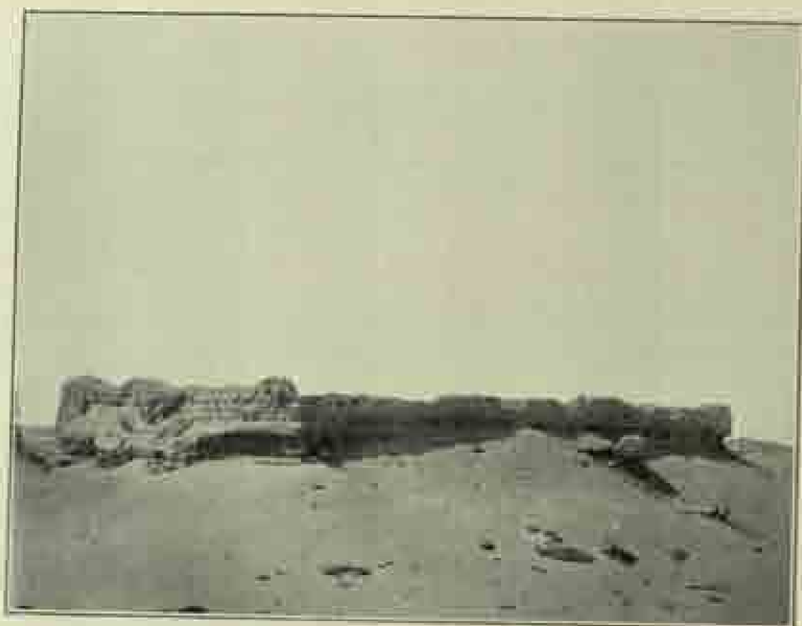
231. VIEW ACROSS HEAD OF ETSIN-GOL DELTA, FROM FOOT OF BAYIN-BOGDO HILL.



232. TOWER NEAR HSI-WAN-TUN (OR SERU) ON ETSIN-GOL.
East wall shows later repairs.



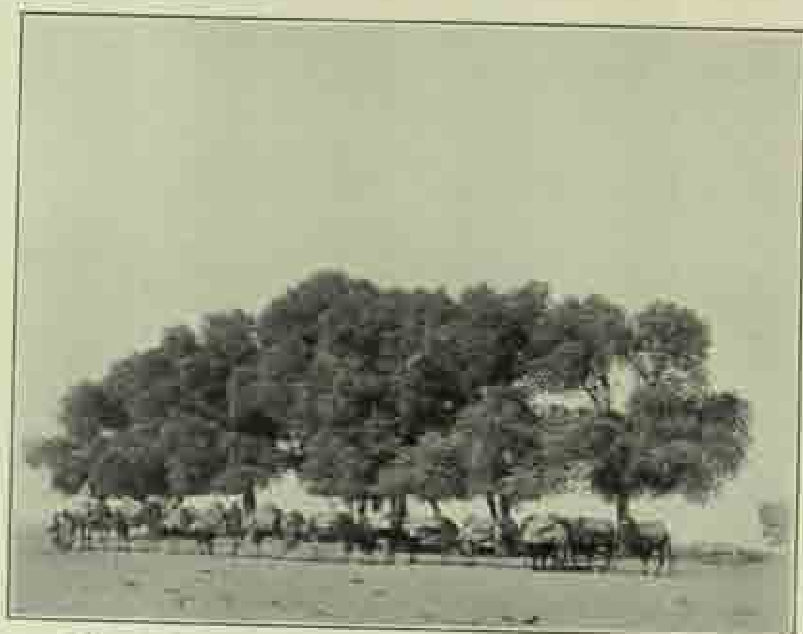
233. RUINED FORT, T. XLVIII. c, NEAR TA-WAN ON ETSIN-GOL.



234. INNER FORT OF ADUNA-KŌRA, NEAR KHARA-KHOTO.



235. DRY RIVER-BED WEST OF KHARA-KHOTO.



236. GROVE OF WILD POPLARS NEAR TĀWUN-TORA, ETSIN-GOL DELTA.



237. HALT AT BARĀN-DURWULJIN, ETSIN-GOL DELTA.



238. CAMP AT BORGASU, ON ETSIN-GOL.



239. TORGUT MONGOLS AT TĀWUN-TORA, ETSIN-GOL DELTA.

seen, clear proof that the annual supply of water brought down by the river was still sufficient here for vegetation to bind the sandy alluvium deposited by each year's summer flood.

Our route beyond, that day and also on the following day, May 20th, lay along the jungle belt that lines the right bank of the easternmost bed of the delta. On the Sai overlooking this three badly decayed towers of clay were passed before we reached the ruined fort known as *Bahān-durwuljin* (' the big fort '), close to the river bank. It consisted of an enclosure, 45 feet square, within walls 11 feet thick, built of bricks 18" × 9" × 7". It appeared to be of distinctly later date than the small forts near Ta-wan. The belt between this branch of the river and the next one westwards contained abundant vegetation and great stretches of meadow-like ground. It was therefore not surprising to find several Mongol encampments when we crossed to that side in the vicinity of the fort. Though the nights were still refreshingly cool, the marching in the heat of the day had now begun to tell severely on the camels, and those hired from Mao-mei had broken down. So we were doubly glad that the rich grazing which we here came upon gave a chance of securing fresh transport, not indeed without delay and trouble, from the neighbouring camps and from those found near our next camp at Suslun-tora. First Mongol encampments.

The ruined enclosure called *Ekki-durwuljin*, ' the little fort ', on the right bank lay some distance off our route, and I was unable to visit it. It was stated to be of the same construction as Bahān-durwuljin, but smaller. Their position at the two ends of a favourite grazing ground suggested that they were meant as places of refuge for parties encamped in the neighbourhood in case of marauding attacks. Before this a decayed watch-tower built of bricks, 15" × 8" × 3" in size, had been encountered at a point of the route known as Sharakure-sanje. Its position in relation to the two forts suggested that the track we had followed so far marked a route which had been regularly frequented during earlier as well as more recent periods. Ruined forts.

After we had covered the first few miles beyond Suslun-tora (Map No. 45. B. 2) on May 21st, the scenery along our route underwent a very distinct change. So far, with the fine groves of Toghraks lining the river-bed, always in rows parallel to its course, and with the luxuriant vegetation extending as far as the eye could reach westwards, the picture was such as I imagined might have met the eyes of travellers by the ancient Chinese high road through Lou-lan, where it passed jungle belts at the head of the Kuruk-daryā delta that were still regularly watered by the river. But very soon our route, thereafter lying constantly within a mile or two of the left bank of the easternmost river branch, entered ground very different in character. Instead of soft sandy alluvium, the soil, within a short distance from the river bank, was now everywhere gravel. Vegetation was scanty and often, where convex bends of the bed were skirted, the ground was perfectly bare. Reed-beds were rare and, like the groves of Toghraks met at intervals close to the river-bed, were confined to places where this formed a concave bend with its left bank, thus offering a better chance for the trees to be reached by flood water. Change of scenery beyond Suslun-tora.

For over forty miles of march on May 21st to 23rd there was no change in this dreary, monotonous scenery. On the right bank of the river branch that we followed, called by our Mongol guides *Ümne-gol*, the strips of vegetation appeared quite as confined and narrow. But to add to the desolate look of the landscape, big ridges of dunes appeared on that side between Bōtu-börü and Ulan-sukhe (Map No. 45. c. 1), close to the east of the bed, a clear indication that the area beyond is not reached by the floods of the river. As we looked westwards of our route beyond Camp 144, the distant line of Toghraks marking the course of the Nārin-gol, the next river-bed on that side, showed for some time across the flat expanse of gravel and then was lost sight of for good. During those marches, until we passed Dzusulun-tsakha on the third day, only two small Mongol camps were encountered, and these too were on the move to grazing grounds farther north. But Descent along *Ümne-gol*.

the thorny scrub where it covered patches of gravel offered plenty of food for camels, and of these great strings were met. They were being taken by their Mao-mei owners to summer grazing in the hills of Kungurche north-eastwards.

Shortage of water in Etsin-gol.

Mālum, our Mongol interpreter, had made a prolonged stay on the Etsin-gol seven years before. The river-bed that he remembered to have seen holding water all through the year was now entirely dry. It was stated by the Mongols who accompanied us to have been so during the whole spring or even longer in the preceding three years. Serious apprehension was expressed by them and by all the other Torguts whom we met afterwards, from their chief downwards, as to the fate of their grazing grounds if this shortage of water in the spring should repeat itself. From Suslun-tora onwards water at our camping-places could be obtained only by digging in hollows scooped out by the preceding summer's flood below concave portions of the river bank.

Shortage of water.

The farther down we moved, the more did the scrubby vegetation, outside the narrow strips close to the river bank, seem to be affected by the shortage of water of recent years. It was easy to realize here the appearance that the branches of the Kuruk-daryā delta south of the Lou-lan station might have presented in the early centuries of our era during years when deficient floods in the river higher up left them dry for successive seasons. Near our camp at Borgasu rows of Toghraks in full leaf close to the river bank (Fig. 238) still gave grateful shade. But a short distance farther on the route led over absolutely bare Sai, where the dry roots of thorny bushes, long dead, lay exposed. Elsewhere the bigger scrub still survived in patches, where the smaller grassy growth lay all withered. Low sand-cones, only a foot or so high, were forming round such bushes as were still alive. In places the trunks of dead Toghraks lay in rows, parallel to the river-bed, but on ground that subsoil moisture had probably failed to reach for centuries.

Series of mounds.

It was near Borgasu (Map No. 45. c. 1) that I noticed the first of a series of mounds, shapeless but undoubtedly artificial and meant to take the place of watch-towers, extending from south to north and about half-way between the Ümne-gol and the bed, subsequently located, of the Nārin-gol. As the map shows, the intervals between these mounds were usually about two miles. They contained neither brickwork nor regular layers of stamped clay, but in some of them brushwood cropped out on the slope. The height of the mounds did not exceed 15 or 16 feet. The impression I received was that of rough signal-stations, suggesting a barbarian imitation of the watch-towers along the Han Limes. There was nothing to indicate their age, as not even potsherds were to be found at the mounds that I examined. According to local information, which, however, I was unable to test, this chain of mounds is reported to stretch southwards to the vicinity of Ekki-dur-wuljin.

Luxuriant jungle below Dzusulun-tsakha.

After a march of about seven miles from Borgasu, the strip of riverine vegetation widened out and assumed the appearance of a luxuriant Toghrak jungle such as I remembered along the lower course of the Keriya and Khotan rivers. At Dzusulun-tsakha we found a Mongol encampment with large flocks enjoying the plentiful grazing; and some six miles beyond, near our camp at Tāwun-tora (C. 147), we reached ground where the area of fertile soil, with large groves of Toghraks, reed-beds, and thickets of tamarisk and other scrub, assumed quite a park-like appearance (Fig. 236). As subsequent surveys showed, this ground marks the head of a subsidiary delta, formed by the Ümne-gol (or Ikhe-gol) branch of the river. This steadily widens out and stretches down to the terminal basin containing the lakes of Sokho-nōr and Gashun-nōr (Map No. 44. c. 4).

Halt at *Tāwun-tora.*

At Tāwun-tora I was obliged to make a two days' halt, May 24th to 25th, in order to receive and return the visit of the chief or 'Beili' of the Etsin-gol Torguts, encamped some eight miles to the north. We had also to make all arrangements at this place for the labour, water-supply, &c., required for our proposed work at the ruined site of Khara-khoto. The Mongol chief proved

a kindly, if somewhat weak-looking person (Fig. 227), and under the influence of the strong recommendation received from the Tao-t'ai of Su-chou seemed willing enough to offer what assistance his resources would permit. That these resources were modest enough I was able to realize, when on May 25th I paid my visit to the 'Beili's' camp at a place known as Dashoba, not far from the westernmost sub-branch of the Ümne-gol.

Visit to 'Beili's' camp.

The way to it led for the most part through shady groves of old vigorous Toghraks and a luxuriant growth of scrub and reeds. It became clear that as the river near its termination spreads out into several shallow branches the belt affording grazing considerably expands. In this area, which may be described as extending about thirty miles from south to north and over twenty miles across at its widest, subsoil water can apparently be reached almost anywhere, at a depth of fifteen to twenty feet, by digging wells. Wide belts of sandy alluvium accompany the several branches of the river and offer reeds and grass that make suitable grazing for horses, flocks of sheep, and cattle. But a considerable portion of the area, between the two main branches and towards the terminal lakes, probably has a gravelly *shōr*-covered surface, with plentiful scrub, such as also occurred on our way to the 'Beili's' encampment.

This presented a very modest appearance in spite of its semi-permanent character, the spot having been occupied as the chief's standing camp for several years past.[3] Within a rough wooden stockade there stood half a dozen felt huts, resembling the Kirghiz 'Ak-ois', and tents, containing the Beili's household and attendants. Outside it a small monastic establishment of Mongol 'Lāmas', maintained from the chief's 'privy purse', was accommodated in three more felt huts. While everything about his person betokened the softening influence of Chinese civilization, the books, objects of worship, &c., were those of Tibetan Buddhism, which reigns supreme in Mongolia. The herds of horses and cattle that form the chief's main wealth, as well as those of his two personal advisers and factotums, were grazing at distant camps.

Terminal branches of Etsin-gol.

As the information gathered on the occasion of my visit to the Beili's camp usefully supplements the topographical data concerning the termination of the Etsin-gol furnished by Lāl Singh's subsequent survey, some observations on both may conveniently be recorded here. According to the statement of the Beili's intelligent chief adviser, who knew Chinese, the western main branch of the river, known as Mörün-gol or Ar-gol, had for many years past received the main volume of water; the Ümne or Ikhe branch far less, and the intermediate Nārin-gol but little. During the three summers preceding my visit the Ümne branch had seen no flood water at all, while the Mörün-gol had carried far less water than usual from June to August and the Nārin-gol scarcely any.

Shrinkage of terminal lakes.

In consequence of this prolonged failure of the summer flood all the grazing on the east side of the delta had seriously suffered, and the Sokho-nōr,[4] the eastern and smaller terminal lake, fed from the Ümne-gol, had greatly shrunk. As a result of this shrinkage the Sokho-nōr, which previously held fresh water, was said to have turned salt. This last statement was fully confirmed by Lāl Singh's survey, which also furnished the explanation of the change. It shows the actual extent of the water-covered portion of the lake basin as a little under five miles from north to south, whereas M. Kaznakov's survey gives it a dimension of fully eight miles in the same direction. The wide belt of ground covered with soft *shōr* that Lāl Singh's plane-table marks to the south of the sheet of water actually held by the basin in 1914 accounts for the difference. It is owing to this great shrinkage that a channel which on the Russian traveller's visit was conducting water from

[3] The map showing M. Kaznakov's survey along the western branch of the Etsin-gol, on Colonel Kozlov's journey, 1899–1901, places the Beili's encampment on that river, in a position approximately corresponding to a point about 15 miles WNW. of Dundun-tsagan (Map No. 45. B. 2).

[4] This is the form of the name as I heard it. In Map No. 45. C. 4 the form *Sogo-nōr*, defectively recorded by the Surveyor, was retained by an oversight.

the Sokho-nōr into the western main course of the Umne-gol, was no longer found running by Lāl Singh. It had obviously dried up meanwhile and thus failed to keep the water of the basin fresh, as it did previously. A comparison of the two surveys also brings out the fact that the extent of the Gashun-nōr, the western and main terminal lake, had shrunk in an exactly corresponding measure, its width from east to west appearing reduced from about twenty to fourteen miles. With regard to the relation between the two lakes it deserves to be specially noted that Lāl Singh's height observations, like those of M. Kaznakov, show the Sokho-nōr as lying appreciably higher than the Gashun-nōr.[3] The fact that the Etsin-gol terminates in two separate, and in 1914 quite independent, lakes has its distinct interest, because it furnishes a close parallel to what we had occasion to point out above as regards the relation between the Su-lo-ho and the Hua-hai-tzŭ basin on the one hand and the bifurcation at an earlier period of the terminal Su-lo-ho towards the Lop sea-bed on the other.[4]

Terminal basin of Etsin-gol.

The survey of this interesting ground in the terminal basin of the Etsin-gol had to be carried out by Lāl Singh alone, while I myself was kept busy by archaeological work at the Khara-khoto site. Having to my regret been unable from lack of time to visit this ground in person farther north than Dashoba, I must be content with a few brief remarks suggested by a comparison of the available topographical data with those noted in the Lop and Su-lo-ho basins. Apart from the bifurcation already referred to, the Etsin-gol terminal basin shares with that of the Su-lo-ho two surface features, not less noteworthy because they are of a quasi-negative character. One is the absence of any very large salt-encrusted areas, and the other the very limited effect that wind-erosion is able to assert on the present surface of the ground, in spite of the violent winds that sweep over both basins during great parts of the year.

Limitation of alluvial deposits on Etsin-gol.

I believe that the explanation in each case may be sought in the comparatively rapid fall of both the Su-lo-ho and the Etsin-gol in their terminal courses. This has necessarily greatly limited the ground liable to periodic inundation and consequent salt-incrustation. At the same time it has also limited the extent of alluvial clay deposits upon which wind-erosion can best work its force when desiccation sets in and leaves them unprotected by vegetation. Along the Umne-gol branch the fall of the river-bed between Camp 156, some three miles above Tāwun-tora, and the Gashun-nōr, a distance of about 44 miles, amounts to fully 570 feet, and it is just the same over the corresponding distance between Camp 150 (Map No. 45. B. 1) and the Gashun-nōr. The belts to which the several river branches have carried their alluvium at different periods are not very wide and are still receiving enough moisture, whether from floods or subterranean drainage, to maintain vegetation and thus receive protection from wind-erosion. The same protection is afforded by the very nature of their surface to the stretches of gravel 'Sai' which separate these belts and are found right down to the vicinity of the terminal lakes. Hence the marked rareness of Yārdangs in the Etsin-gol basin, and the scarcely noticeable effect that wind-erosion has had upon its ruins.

Sand ridges east of Umne-gol.

Yet the strength and frequency of the winds that blow down into the Etsin-gol basin, mainly, as we learned by trying experience, from the west and north-west, have left their landmark in the shape of big ridges of dunes to the east of the Umne-gol. As the maps (Nos. 44. C. 4; 45. C. 1) show, this accumulation of sand ridges reaches a height of 200 feet to the south of the Sokho-nōr, and stretches for a total length of over twenty miles. We have in it the exact counterpart of the high ridges of drift-sand which rise to the west and south-west of the terminal lake-bed of the Su-lo-ho

[3] According to M. Kaznakov's observations the Sokho-nōr at the level seen by him lies about a hundred feet higher than the Gashun-nōr. Lāl Singh's readings, with an aneroid that kept a remarkably good record, make the former lie about two hundred feet higher.

[4] See above, pp. 386 sqq.

(Map No. 35. B, C. 4), and which on a still vaster scale extend along the Bēsh-toghrak valley, that eastern arm of the ancient Lop sea (Map Nos. 32. D. 4; 35. A, B. 4).

Route up Etsin-gol from Mongolia.

I have already indicated above the striking similarity between the route passing up the Etsin-gol from the heart of Mongolia and that ancient Chinese highway which once led through the Lop desert past Lou-lan and the Kuruk-daryā into the Tārīm basin. Once the traveller had left the terminal river-courses facilitating the use of both routes, the ground to be crossed by him was, indeed, very different in essential physical features. On the ancient Lou-lan route the terrible waterless waste of the salt-encrusted Lop sea-bed lay beyond, and with that the difficulties presented by the route which leads north of the Gashun-nōr across the gravel plateaus and southernmost hill ranges of the Altai, barren as these are, can bear no comparison. But apart from this difference in the conditions prevailing farther on, everything that met my eyes in this Etsin-gol delta after a succession of low-water seasons seemed as if meant to bring before me the appearance that the delta of the dying Kuruk-daryā around ancient Lou-lan may have presented to those who made their way through it before its final abandonment.

Recent reduction of grazing.

There were the river branches still 'in being', left dry for almost all the year but yet carrying enough water below the surface to maintain fine groves of Toghraks and luxuriant scrub along their banks. But where beds had received no water for a series of years, as had happened with the Ovang-gol (Map No. 44. C. 4), tamarisks were growing only on cones, and many of the wild poplars were dying. Wide stretches of ground separating the several beds retained only thin scrub, no longer fit for grazing by sheep or herds of cattle. Much of the ground near the terminal lakes was still covered with reeds; but sad complaints were heard in the scattered camps of the reduction of the pasture here owing to the inadequate floods of the last few years, and of the danger of the same fate overtaking the grazing in the riverine jungle belts.

Conditions compared with those of Lou-lan.

It seemed as if 'desiccation' were casting its shadow ahead upon this ground, and as if the Mongols occupying it were beginning to be conscious of it. Yet the present population of about two hundred Torgut families who permanently use the grazing grounds on the Etsin-gol is thin enough, considering the total extent of the area. The restriction of the available grazing; the civilizing influence exercised by Chinese traffic passing along the route to carry food-stuffs to the Mongol tribes northward; the necessity of resorting to wells and in the matter of worship to permanent timber-built shrines,—all these influences had manifestly affected their ways of life. We were therefore in presence of conditions here such as probably prevailed among the indigenous population of Lou-lan, originally all hunters and herdsmen, during the centuries which elapsed between the first opening of the trade route through that region and its final abandonment. It seemed an impressive illustration of the fact that similar geographical conditions may bring about similar changes in physical and human surroundings in periods of history widely separated.

Section II.—KHARA-KHOTO AND ITS REMAINS

Start for Khara-khoto.

Willing as I found the 'Beili' of the Torguts to give such help as he could towards our proposed work at the ruins of Khara-khoto, the raising of a minimum number of Mongols to help in the expected excavations was a matter of difficulty. Their camps were widely scattered, and such men as could be spared from looking after flocks and herds were by no means anxious to forsake their ease for work in the heat of the sun, generous as was the pay I offered. However, by the morning of May 26th a dozen young fellows turned up (Fig. 239); and as camels had also been secured to carry our *impedimenta* and the needful supply of water, we were able to start for the site.

Our Mongols found it convenient first to take us back to Dzusulun-tsakha, and there spare supplies, &c., were left behind. We then crossed the Ümne-gol bed, here about 300 yards wide,

Ruined fort east of Ümne-gol.

and a flanking line of tamarisk-cones, and passed south-west into a wide gravel plain supporting low scrub in most places. After proceeding about two and half miles from the river, we came upon a belt of luxuriant Toghraks, and on emerging from it sighted to the south a small ruined fort, which was said to bear the name of *Sokhato-köl*, besides the general designation *Ulan-düruljin*. Its walls were 12 feet thick and about 24 feet high, and enclosed a square of 49 feet. They were constructed of solid bricks, measuring 14 inches by 8 and 6 inches thick, with a layer of reeds inserted after every six courses. The whole bore a decidedly ancient appearance, but nothing was found within or around to furnish a definite chronological indication. The eastern wall showed a breach, not due to wind-erosion, and the masonry on either side of the entrance leading through the southern face was broken. The close agreement in the size of the bricks with those used in the Limes towers near Mao-mei deserves notice.

Ruins of *Adūna-kōra.*

Continuing to the south-east across the flat expanse of gravel, patches of ground closely strewn with potsherds were repeatedly met with, suggesting former occupation. But no structural remains were traceable. Fragments of fine glazed ware pointed to Sung or later times. After passing here and there through thin rows of tamarisk-cones we arrived at the large ruined fort known to the Mongols as *Adūna-kōra*. Many dead Toghraks lay fallen around it, none of them apparently of great age, which suggested that jungle had grown up here some time after the occupation of the site and had subsequently died away again owing to want of moisture. A shallow bed masked by tamarisk-cones could be traced winding to the east of the fort. I may also mention that before reaching this we came across what looked like the line of a small canal trending to the north-east.

Fort of *Adūna-kōra.*

The fort of Adūna-kōra, as the plan in Pl. 16 shows, consists of two walled enclosures, one within the other, but not concentrically placed. The walls of both are built of stamped clay, those of the inner enclosure being about 20 feet thick and those of the outer about 12 feet. The walls of both enclosures on the north and west faces have been reduced for the most part to the condition of mere gravel-covered mounds, clear evidence, it seems to me, that the attack by wind and rain comes mainly from those sides. The inner fort (Fig. 234) encloses an area of about 83 yards square, while the outer forms a quadrangle measuring about 220 yards from east to west and about 180 yards across. The gate of the inner fort leads through the middle of the southern face; that of the outer is situated on the east and is protected by a bastion enclosing a court about 40 feet square. The walls throughout show rows of holes, where large pieces of timber were doubtless once inserted for reinforcement and have now rotted away. This complete decay of the woodwork appears to indicate that less arid climatic conditions than the present prevailed here at one time.

Chronological indications.

No structural remains could be traced within either enclosure. Nor were pottery fragments as plentiful as they were outside. They include many pieces of good glazed ware (Pl. LI), of which specimens are described in the List below, and which Mr. Hobson ascribes to Sung times (see App. *D*). The only definite chronological evidence was supplied by five Chinese copper coins, which were picked up on ground close to the outer wall on the east. Four of these are *K'ai-yüan* pieces, current throughout T'ang times, while a fifth shows the Nien-hao *Hsien-p'ing*, corresponding to A.D. 998–1004. This last coin makes it clear that the ruined fort must have been occupied, at least intermittently, down to Sung times. From the absence of structural remains, taken in conjunction with the abundance of potsherds, I was inclined to conclude that the circumvallation had primarily served as a place of refuge or halt for caravans, &c., moving by the Etsin-gol route. The main cultivated area of the 'City of Etzina', from which according to Marco Polo's testimony all parties frequenting this route to and from the heart of Mongolia had to draw their supplies, was found by us to lie fully ten miles to the east; the convenience of a safe halting and victualling

station close to the old course of the Ümne-gol branch of the river would therefore certainly have recommended itself as saving a great detour.

Approach to *Khara-khoto*.

The ground beyond the ruined fort grew more and more sandy, with small rudimentary Yārdangs here and there. At a point nearly two miles from Adūna-kōra we first sighted the high walls of *Khara-khoto*, 'the Black Town', across a dry river-bed edged on the west by a belt of low tamarisk-cones. It was a striking sight, the most impressive perhaps that I had ever seen on true desert ground, this dead town, with massive walls and bastions for the most part still in fair preservation, rising above the bare gravel flat which stretches towards it from the river bank. A conspicuous Stūpa, of distinctly Tibetan appearance, crowning the big bastion of the north-western corner (Fig. 240) and a row of smaller Stūpas on the ground outside the bastion, seemed at first sight to proclaim the predominantly religious character of the site. But that Buddhism had not held exclusive sway among those who knew the town while it was in being, became evident when on our first approach I recognized a Muhammadan tomb or 'Gumbaz' in a conspicuous domed structure near the south-western corner of the town walls (Fig. 251). Its vaulted interior offered a convenient place for storage, and outside it I pitched my tent, while the interior of the big bastion guarding the western town gate was occupied by my men as an effective shelter from both heat and winds. How much protection from the latter was likely to be needed was sufficiently indicated by the big accumulation of drift-sand which lay heaped up against the walls, especially on the west side (Fig. 243), and the succession of violent gales, almost all from the north-west, that broke upon us with regularity every second day during the time of our stay fully confirmed this anticipation.

Surroundings of ruined town.

There was nothing in the surroundings of the dead town to impair the imposing effect created by the massive strength of the town walls and the utter desolation which reigned within. All round the walls there stretched a bare flat of gravel, supporting only here and there a small stunted tamarisk or a few tufts of thorny scrub. To the west this gravel plain was bounded by the dry river-bed that we had crossed on our approach (Fig. 235), while winding to the south and east we found a much wider branch of the same, fully half a mile across for the most part and forming a big bay to the south as seen in the sketch-plan (Pl. 17). The point where the two beds bifurcated was located about three-quarters of a mile from the south-west corner of the town, and there the steeply cut banks of the more southerly branch showed a depth of about twenty feet. To the north, at a distance of over half a mile, the gravel plain between the two branches was overrun by a big ridge of sand, rising to 40 or 50 feet in height and fixed by tamarisk-cones. Its western portion had completely blocked up the more westerly of the dried-up river-beds. To the question of the connexion of these beds higher up with the Ümne-gol I shall have occasion to refer farther on.

Arrangements for work at ruined site.

On the very day of our arrival at the site I sent off Afrāz-gul with some camels on a reconnaissance into the desert to the north-east. A Mongol from Ili, whom we had met on our march down the Etsin-gol and who proved less unwilling than the local Torguts to talk of old remains, had stated that he had come upon ruins in that direction which had not been visited by Colonel Kozlov and were apparently unknown to those who had served as his guides. All ponies and camels were then sent back to water and grazing at Dzusulun-tsakha, whence the camels were subsequently to return at regular intervals with water-tanks and leather 'mussucks' refilled. Two days later, I was able to let Lāl Singh start, with the animals brought back by one of these parties, on his survey up the dried-up river branch of Khara-khoto and thence across to the Mōrūn-gol and the terminal lake-beds. With the few of our own people who remained and the dozen of indolent Mongols as diggers, I myself set to work on the morning of May 27th upon the exploration of the remains found within the town walls and immediately outside them. The task kept us fully occupied

for eight days, and was interrupted only for the examination of the ruined dwellings that Afrāz-gul succeeded in discovering at some distance eastwards. Its difficulties were considerably increased by the innate laziness of the Mongols in their unaccustomed role as labourers, and no less by the quarrels that our irascible 'Lāma' Mālum managed to pick with this refractory crew. In describing the results of our labours I shall ignore the order in which they were carried out and deal with the remains examined in quasi-topographical order.[1]

Construction of walls.

The most striking ruins of Khara-khoto are those of its circumvallation. This forms, as the sketch-plan in Pl. 18 shows, an approximate rectangle nearly orientated. The area enclosed measures about 466 yards on the north side and 381 yards on the west. It is thus about 50 per cent. larger than that of the Lou-lan station,[2] but less than one-half that of the ruined town of So-yang-ch'êng near Ch'iao-tzŭ.[3] The walls are built of stamped clay and reinforced by a wooden framework of which the big rafters could be traced in three rows all round the inside faces of the walls. But in most places their position is marked only by the holes which the decayed timber has left (Fig. 248). The walls are about 38 feet thick at the base, but show a considerable inward slope so that the width at the top, about 30 feet from the ground, is only 12 feet. This width is, however, greatly increased near the north-western corner (Fig. 248), where the top is crowned by the Stūpas to be presently mentioned, with a correspondingly greater thickness at the base. In places a parapet about one foot thick, with loopholes, still survives to a height of 5 or 6 feet. Ramps leading up to the top of the walls can be traced at the gates and at the north-western and south-eastern corners.

Cuttings through walls.

Gates, 18 feet wide, lead through the western and eastern wall faces, each protected by a rectangular outwork built as massively as the walls themselves (Fig. 250). In addition, the walls have been pierced at two points (*1*, *2* in Pl. 18) by passages which are certainly of later date. The one in the south wall appeared to me as if made to facilitate access to the ground outside at some period when defence had ceased to be a serious consideration. The other in the north wall (Fig. 247) seemed needlessly large for this purpose. The fact that both are quite close by the side of a bastion clearly militates against the theory of a breach made by a besieger. On the other hand, I found no evidence to support the story about the cutting in the north wall heard by Colonel Kozlov, which

[1] [It may conveniently be explained here that at the time of my visit to Khara-khoto the only account available to me of the explorations which Colonel Kozlov had carried out at the site in 1908 was that contained in the English translation of his preliminary reports to the Imperial Russian Society of Geography of his journey, 1907–9, as published in the *Geographical Journal*, xxxiv, pp. 384–408 (October 1909), and xxxvi, pp. 288–310 (September 1910). Nor had I access to any more detailed description of the ruins as the distinguished Russian explorer had found them or of the operations to which he devoted his two successive stays at the site, when I was preparing the present record of my own work there.

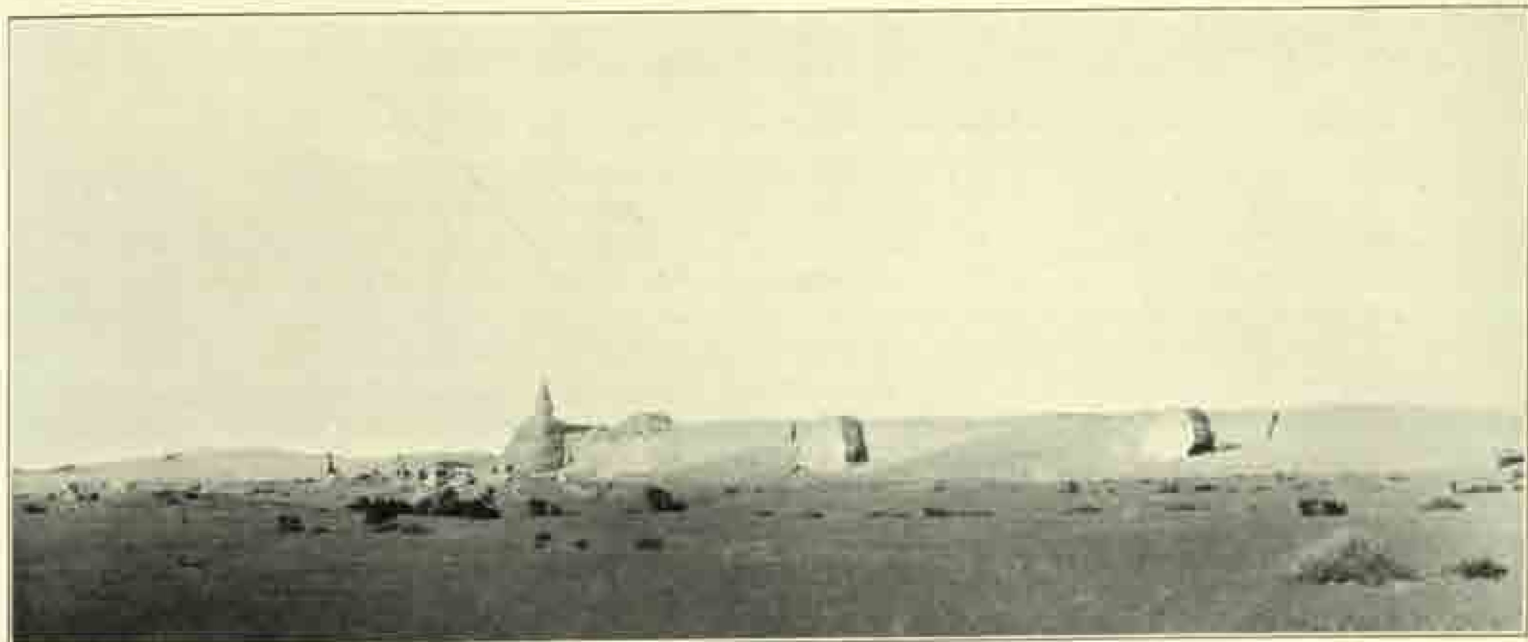
It is only at the time when this chapter is passing into print that I received from Colonel Kozlov himself a copy of his book dealing with 'Mongolia, Amdo and the dead city of Khara-khoto' (in Russian; Petrograd, 1923). My regrettable ignorance of Russian does not allow me definitely to ascertain what additional information, if any, of archaeological import Chapter XXV dealing with the site (pp. 546–68, with 23 figs. in the text) furnishes. It contains, however, very welcome reproductions of photographs taken of the sepulchral monument (marked by me K.K. II; see below) from which Colonel Kozlov secured his great *trouvaille* of Buddhist texts and paintings.

These photographs had already before been published by M. Serge d'Oldenburg in the introductory chapter of his monograph on 'Materials for Buddhist Iconography from Khara-khoto' (in Russian; St. Petersburg, 1914). This valuable publication from the pen of a very competent expert deals with selected specimens of the many fine paintings discovered by Colonel Kozlov. It too, I regret, remained unknown to me until I received it in May 1925 as well as the first-named book as kind gifts from the authors. Extracts from the iconographic information furnished in M. d'Oldenburg's monograph appear to constitute the bulk of the remaining chapters, XXVI–VIII, devoted to Khara-khoto in Colonel Kozlov's volume.

Notices on Khara-khoto, obviously of a preliminary character, by MM. A. Ivanov, d'Oldenburg, V. L. Kotwitz, are quoted in a foot-note of M. d'Oldenburg's monograph, p. 1, from the Proceedings of the Imperial Russian Geographical Society (vol. xlv, 1909, pp. 463–77).]

[2] See *Serindia*, i. p. 387.

[3] See *ibid.*, iii. p. 1102.



240. CIRCUMVALLATION OF KHARA-KHOTO, SEEN FROM SOUTH-WEST.



241. NORTH-WESTERN CORNER OF CIRCUMVALLATION OF KHARA-KHOTO, WITH STŪPAS OUTSIDE, SEEN FROM NORTH.



242. SOUTH FACE OF CIRCUMVALLATION OF KHARA-KHOTO, WITH SAND HEAPED UP ON LEE SIDE.



243. WEST FACE OF CIRCUMVALLATION OF KHARA-KHOTO, WITH MUHAMMADAN TOMB AT SOUTH-WEST CORNER.



244. INTERIOR OF KHARA-KHOTO, LOOKING TOWARDS SOUTH-EAST.



245. INTERIOR OF KHARA-KHOTO, LOOKING TOWARDS NORTH-WEST.



246. WESTERN WALL OF KHARA-KHOTO, WITH BREACHES DUE TO WIND-DRIVEN SAND, NEAR SOUTH-WEST CORNER.

the abstract of his preliminary report reproduces at length.[4] But since this story points very significantly to some traditional folk-lore connexion between the cutting and great hidden treasures, it seems quite possible that the former owes its origin to the operation of early treasure-seekers, more persistent than others of whose handiwork plain signs were to be seen in abundance elsewhere. In support of this conjecture it deserves to be mentioned that at several points in the north wall, close to the passage through it, a number of tunnels and cavities had been burrowed into the clay rampart from the inside, while a neighbouring attempt, at the point marked *4* in Pl. 18, had effected a breach not merely deep down into the wall but also penetrating into the bastion in front of it.

Bastions of circumvallation.

In addition to the already mentioned outworks, at the gates, the arrangement of which is clearly shown by the sketch-plan in Pl. 18, the walls were defended by big circular bastions, slightly varying in dimensions, at the four corners and by rectangular bastions along the sides. There are of the latter four each on the western and eastern faces, and six and five respectively on the north and south. These rectangular bastions also vary in size, the largest, defending the outworks of the gates, having a frontage of 47 feet. Outside the western and southern faces there were found in places scanty remains of a kind of covered way, formed by a wall of stamped clay, 10 feet thick, carried in front of both curtains and bastions. Of a fosse I was unable to trace any indications.

Effect of wind-erosion on walls.

The way in which the drift-sand has been slowly but steadily attacking the town walls of Khara-khoto offered occasion for observations of special interest to me in the light of those made at sites like those of Lou-lan, So-yang-ch'êng, An-hsi, where wind-erosion has found full play for its force. As the photographs in Figs. 242, 243, 246 clearly show, the prevailing north-western winds have heaped up big dunes against the western and northern walls. Where the corners of the projecting bastions caught them, the dunes have reached the summit of the wall, and here the corrosive action of the wind-driven sand has not only completely carried off the parapet, but cut trough-shaped breaches into the body of the wall, to a depth of 6 feet and more. The sand which has thus entered the circumvallated area has been partly left on the lee side under the shelter of the western and northern walls (Fig. 245), and partly driven across the interior until stopped by the inside of the eastern and southern walls. Here the same breaching action is repeated (Fig. 242); but owing to the absence inside of corners formed by bastions the position of breaches on the top of the wall is less regular. Yet the force of wind-erosion was well marked here also, as shown by the eastern wall having been carried off for a length of 32 feet to a depth of 6 feet.

Destruction within walls.

With the massive solidity of the circumvallation and its comparatively good preservation the utter decay and consequent emptiness of the interior of the town presented a striking contrast. As seen from the sketch-plan in Pl. 18 and the photographs Figs. 244, 245, the greater part of the area appeared as a desolate waste with only a few ruined structures rising above the level expanse of decomposed clay and small debris, while the outlines of other buildings could be traced only with difficulty by low remnants of walls here and there, stumps left of wooden posts, or by foundations and floors of hard bricks. Standing on the height of the walls it was possible to make out certain

[4] See *Geographical Journal*, October 1909, pp. 387 sq. This story ascribes the breach to a legendary ruler of Khara-khoto, 'Khara-tsian-tsiun', who, when besieged by an imperial Chinese army and deprived of water by a diversion of the Etsin-gol, attempted to break out here with his troops, after having buried his countless treasures in a well that had been dug near by in the vain hope of reaching water.

A wide and deep hole undoubtedly marking a well is found close to the cutting (see *3* in Pl. 18) and may have formed the starting-point for the particular form of the folk-lore account heard by Colonel Kozlov. That traditions of great buried treasure have gathered round the site is certain, and there is abundant evidence that treasure-seekers have made prolonged search for it by burrowing at the different ruins. All I could learn, through the defective channel of our interpreter Mälum, was some vague connexion between the breach in the north wall and the siege that Chinghiz Khān was believed to have laid to the town. About the cutting in the south wall I was able to learn nothing.

road lines crossing this area, particularly in its eastern portion where a main street leading up from the east gate to a ruined temple raised high on a clay mound could be followed with ease also on the ground. But even along this it was easier to make sure of flanking refuse heaps than of the position of buildings which had crumbled away almost completely. Most of the structures within the walls, and probably all private dwellings, had been built of stamped clay and timber walls of no great thickness, and these walls were bound to decay rapidly once occupation had ceased. Wilful destruction and long-continued burrowing for ' treasure ' at a site so easily accessible from ground still inhabited have probably accelerated the process, and at certain points traces of fire were unmistakable. This levelling of the interior had doubtless already proceeded far by the time that the accumulation of drift-sand outside overtopped the walls. Hence the protection which dunes might have afforded to ruined structures had here been of no avail.

Limitation of search.

It was easy to realize from the first that a complete clearing of the interior could not be attempted with the small band of inefficient Mongol diggers. It would have implied a disproportionate sacrifice of time on our part, even if it had been possible to persevere with it in spite of the difficulties due to refractory workers, the heat, the dust-storms, and the scarcity of water. So I decided to confine our search to those few among the temple ruins recognizable in the western portion of the town where layers of debris still remained likely to hide objects of interest, and to the extensive refuse heaps elsewhere which held out some promise of fragments of writing, &c., capable of affording chronological evidence. In this hope I was not disappointed, and as the finds of written records in these places, together with the coins picked up within the walls and immediately outside them, removed from the start all doubt as to the period down to which occupation must have extended, we may review them at once.

Written remains amidst refuse.

Among the deposits of rubbish, composed mainly of stable refuse, chippings of wood, broken pottery, &c., those found along the sides of what appeared to have been the chief thoroughfares were the largest. They lay mostly in places where no remains of substantial structures adjoined, and the conclusion seems justified that they had chiefly accumulated close to modest habitations which may have served as booths, inns and the like, and which, in consequence of their poor construction, have suffered complete effacement. Apart from a few fragments of wooden objects bearing stray Chinese characters, all the inscribed remains are of paper, and their general condition leaves no doubt that they had found their way into the rubbish-heaps as ' waste papers '. The great majority of the documents are torn pieces, many of quite small size, while others, though apparently complete, were found twisted into rolls or otherwise crumpled up. In some cases a number of strips bearing Chinese characters had been tied together in knots. Among the records thus recovered, those in Chinese were by far the most numerous, and so far as appeared from a hasty examination at the time, all, with the exception of some printed pieces, were hand-written. A rough inventory prepared before the submission of the Khara-khoto materials to different collaborators shows a total of some 230 Chinese documents and fragments from this source, as against 57 pieces in the Hsi-hsia or Tangut script, close on half of these being printed. Of fragments showing Tibetan writing only three were found, in addition to a Chinese document with a Tibetan endorsement and two pieces containing writing both in Hsi-hsia and Tibetan. Finally the yield of the refuse heaps includes 9 pieces inscribed in Uighur script and Turkish language [see Prof. von Lecoq's App. *K*].

Chronological bearing of documents.

As no data have yet reached me from the two scholars who have kindly undertaken the examination of the Chinese and the Hsi-hsia and Tibetan remains respectively, I am unable to surmise what indications of definite chronological bearing, if any, these ' waste papers ' from the rubbish-heaps of Khara-khoto may furnish. The presence of Hsi-hsia pieces, both written and printed, suffices, however, to prove that the town must have been inhabited during the period of the Hsi-hsia dynasty

(A. D. 1032–1227), as its founder is known to have first introduced that script.[5] But its occupation, so far as this documentary guidance at present goes, might well have continued also long after the destruction of the Tangut kingdom by Chingiz Khān in 1227.

[Preliminary information which has reached me from M. Maspero while these pages are passing into print fully confirms this assumption. Among the miscellaneous fragmentary documents in Chinese which were picked up from refuse heaps within the ruined town his notes mention nine bearing exact dates. These dates all fall within the period of the Yüan or Mongol dynasty and extend from A. D. 1290 (or possibly 1266) to 1366. The latest thus precedes only by two years the downfall of the dynasty and the succession of the Ming (A. D. 1368). The contents of these dated documents relate mostly to petty criminal affairs, grain accounts and the like, and suggest that the local administration was carried on at the time on the customary Chinese lines. Documents of Mongol period.

The discovery noted below, p. 444, of what Dr. Laufer has recognized as remains of a Chinese paper-note dated in the first regnal period, Chung-t'ung (1260–4), of the Emperor Kublai, in a room of the ruined Sarai, K.K. I. viii, agrees with the chronological evidence of the documents just referred to.]

Direct evidence in support of the above theory could before be derived only from the identification of Khara-khoto with Marco Polo's 'City of Etzina', which will be discussed below; for the dates supplied by the coins that we found at the site do not extend beyond the third quarter of the twelfth century. A reference to the list of these coins in Appendix *B* will show that out of seventeen Chinese copper coins found within the town or immediately outside it no less than thirteen bear Nien-haos falling between the years A. D. 1008 and 1161, while three show the T'ang legend *K'ai-yüan* and one is a *Wu-chu* piece. It deserves to be noticed that all these thirteen coins, with the exception of a piece showing the Nien-hao Chêng-lung (A. D. 1156–61) of the Chin dynasty set up by the Nü-chên Tartars, belong to issues of the Sung dynasty. The total absence of coins of the Hsi-hsia rulers, issues of which are known to have been made between the years 1075 and 1226,[6] is certainly very curious. It may be explained, with some degree of probability, by the reflection that the circulation of the imperial coinage of the Sung must, owing to the preponderance of trade with China proper, have always been greater than that of the local rulers, even within the limits of the Tangut kingdom. Numismatic evidence.

Among the miscellaneous small objects recovered from the rubbish-heaps of the interior of the town, the very numerous and varied specimens of glazed pottery deserve special mention. Referring for details to the Descriptive List below and Mr. Hobson's Appendix *D*, it will suffice to call attention to the fine glazes, generally in varieties of blue and green, sometimes crackled, displayed by pieces like K.K. 021, 23, 36–48, 103–13 (Pl. XI, LI, LVII); to the celadon-like fragments 027, 29, 103; and the striking effect attained in decorated pottery as shown by the specimen 0116 (Pl. LVII), where the bold floral pattern in olive-green glaze is set off by the scraped ground in buff clay. Judging from the abundance of big potsherds of this ware both at Khara-khoto and at the rural settlement (K.E.) to the east, this ware may safely be assumed to be of local make. Mr. Hobson considers that the numerous specimens of different types of Northern Chinese celadon, including Chün Chou and Tzŭchow wares, may be of Sung or Yüan times. On the other hand, he describes the few pieces of porcelain (K.K. 025, 26, 45, 47, 48) as probably of the Ming period. The coral ornamented with scroll-work, 085 (Pl. LXVI), shows fine work, while the numerous beads in jade, agate, cornelian, &c., 071, 75, 82, 83, &c., are plain. The remains of iron implements include fragments of a dagger, 018; a saw, 080 (Pl. LXVI); knives, 020, 66 (Pl. XI), 77. The well-preserved black lacquered wooden tablet, 013 (Pl. LXVI), shows incised Chinese characters. With the Miscellaneous small objects.

[5] Cf. Bushell, *The Hsi-hsia Dynasty of Tangut*, p. 8.

[6] See *ibid.*, pp. 14 sqq.

specimens of silk fabrics, 02, 4, 6, may be mentioned also the pieces marked K.K. I. 01–4, found close to the temple to be described presently.

Remains of large shrine.

The western portion of the town appeared to have been mostly occupied by shrines. But among these only very few retained more than the foundations of their walls or outlines of platforms, as can be seen by comparing the photograph in Fig. 247 with the corresponding portion of the plan, Pl. 18. Near the northern wall, however, the walls of a large cella, K.K. I. i, still rose to a good height, while the interior held a considerable accumulation of debris. The cella, as shown by the plan in Pl. 19, measured about 32 feet in width and had a length of over 50 feet, the end towards the front on the south being broken. The walls were a foot and a half thick and built of sun-dried bricks, about 12" × 5" × 2", set on edge with the shorter side upright. As the enclosing walls stood uniformly to a height of only 6 or 7 feet, while the wall of the niche once backing the colossal central image still rose to over 15 feet in height, it appears probable that the roof was carried by a wooden superstructure above the enclosing walls. Of this, however, only matrices remained, showing the position of heavy timber posts.

Clearing of image platforms.

On clearing the debris of brickwork, roof tiles, &c., which lay to a height of over 4 feet from the floor, it was found that the high wall of the niche already mentioned was once flanked by side walls forming two alcoves. These placed back to back, one in front and another behind, had contained raised image platforms of a type with which the cave-shrines of the 'Thousand Buddhas' at Tun-huang had made me familiar. The platform in front, facing south, showed signs of having been burrowed into in recent times, and the base of the colossal central image that must have once occupied the niche had completely disappeared. Close to the east of the place where it once stood, there was found a Chinese copper coin, with the Nien-hao Hsi-ning (A.D. 1068–78), which may be supposed to have been laid at the foot of the image base as a votive gift. The colossal stucco image itself must have been destroyed long before; but many large pieces of gilt stucco which had belonged to this figure, probably a standing Buddha, were discovered among the debris. The circular lotus bases of minor images, two on either side, could still be traced. The platform on which they stood had a horseshoe shape, such as is common at Ch'ien-fo-tung.

By a passage leading round the cella walls for *pradakṣiṇā* purposes the smaller alcove at the back was approached. Excavation here brought to light the main image base, as seen in Fig. 249 and Pl. 19, retaining traces of painted floral decoration; also the bases of two flanking statues. In front of this platform two small circular bases may once have carried figures of Dvārapālas. The two flanking bases still retained portions of the reed-covered sticks which once had served as cores for the stucco figures.

Remains of sculptural ornament.

The complete wrecking of this shrine must be all the more regretted in view of the rich decoration to which the mass and variety of fine fragments of sculptural ornament in stucco and faience bear witness. They are fully described in the List, where attention has been also drawn to the curious points of contact in subject and style of treatment which a number of the small decorative motifs in stucco exhibit with details of the sculptural friezes of the 'Ming-oi' shrines near Kara-shahr.[7] The remains recovered from the large statues in stucco include the front portion of a colossal foot, K.K. I. 046; life-size or colossal fingers and toes, gilt, 012, 015, 041, 0109, &c. (Pl. LIV); locks of hair, 040 (Pl. LIV), &c., often in spirals painted blue, 0151, &c.; hands, 08, 010; the painted forearm, 076; &c. To the dress and ornaments of such statues belong the very numerous pieces of gilt drapery, 011, 016, 021, &c., among which 033 recalls the peculiar 'poky' sleeve of a fine wooden sculpture from Ming-oi;[7a] the many fragments of a gilded pearl cable ornament, 014 (Pl. LIV), &c., of pearl strings, 092, and of pearl straps, with rosettes, 029, &c. (Pl. LIII), all also

[7] See *Serindia*, iii, pp. 1192 sqq.

[7a] See *Serindia*, iv, Pl. CXXVII, Mi. xv. 031.



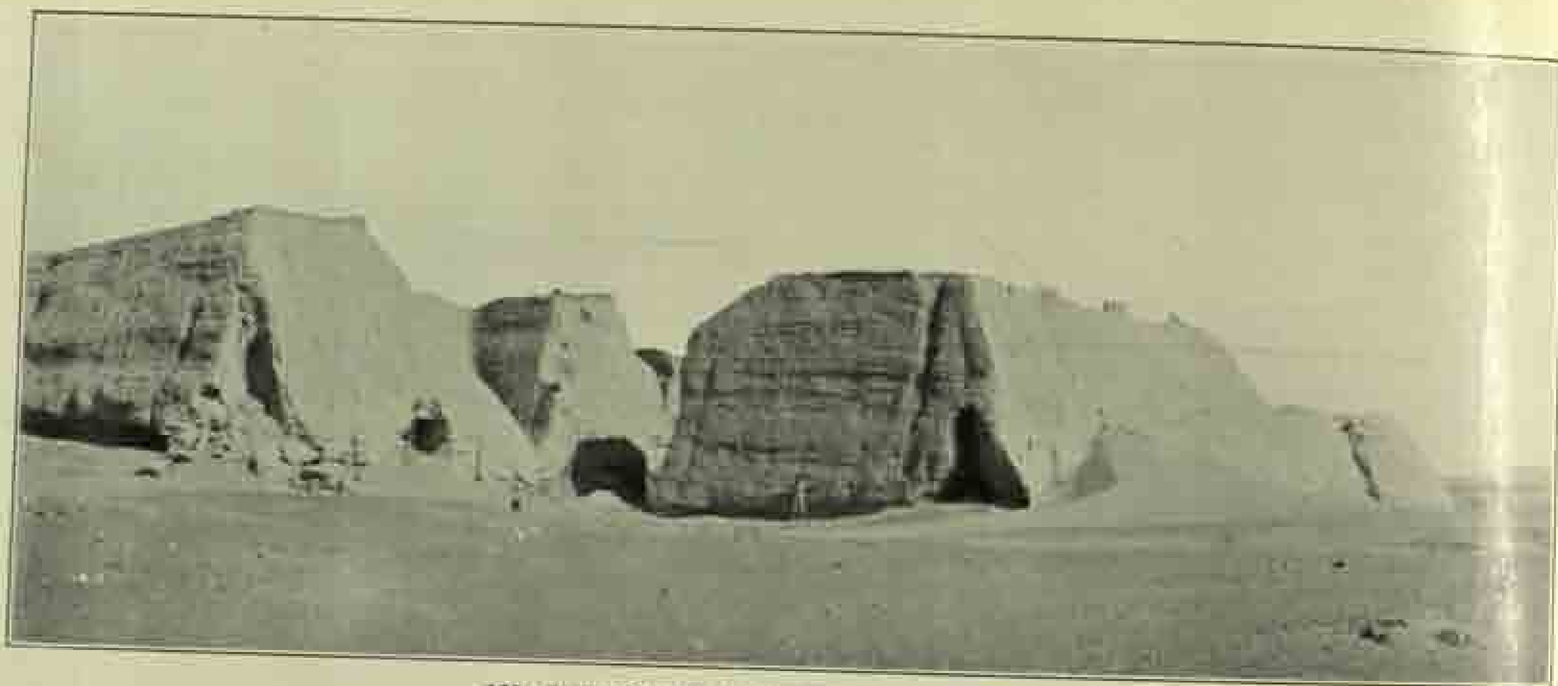
247. NORTH-WEST CORNER OF CIRCUMVALLATED AREA, KHARA-KHOTO, SEEN FROM WITHIN.
Arrow marks position of passage cut through north wall.



248. RUINED STŪPAS BUILT ABOVE NORTH-WEST CORNER OF CIRCUMVALLATION, KHARA-KHOTO.



249. ALCOVE AT BACK OF TEMPLE K.K. I. i, KHARA-KHOTO, WITH IMAGE BASES.



250. BASTIONS GUARDING EASTERN GATE OF KHARA-KHOTO.



251. RUIN OF MUHAMMADAN TOMB, K.K. VI, KHARA-KHOTO, SEEN FROM NORTH.



252. FRONT OF MUHAMMADAN TOMB, K.K. VI, KHARA-KHOTO, FACING EASTWARD.

represented at 'Ming-oi'; pendants, 0104, &c.; fragments of gilded tiaras, 073, &c.; jewel-shaped ornaments, 027, &c. (Pl. LIII). The mitre-shaped stucco head-dress, 034 (Pl. LIV), is of interest owing to the peculiar arrangement of loose plaits and locks. To smaller statues belonged the Buddha head, 0195 (Pl. LIII), and the fine hand, i. 017 (Pl. LIII).

Friezes in stucco relief, like those of Ming-oi, probably furnished the excellently modelled small figure of a fat laughing 'Ho-shang', K.K. I. 0142 (Pl. XLIX); the demons' heads, 036, 69 (Pl. LIV); the fragments of figures clad in skin, 037, &c.; the saddled horse, 0121 (Pl. LV); fragments of gilded mail, 0126, and others. What was the position of the realistically treated snakes, of which heads and numerous other fragments were found, 09, 13, &c. (Pl. LIII, LIV), is uncertain. Wood-carvings like the jewel, 0103 (Pl. LIII); the Stūpa-shaped finial, 042 (Pl. LXVI), &c., are likely to have formed part of some decorative scheme. Of wall-paintings only tiny fragments have survived in 055, 0200, while those on the plaster still adhering to the walls had suffered complete effacement by exposure. *Fragments. Stucco reliefs.*

Of greater interest are fragments of some paintings on silk, probably banners like those found as votive offerings at Ch'ien-fo-tung, which were discovered, most of them badly broken, on the main platform. K.K. I. i. b. 03 shows parts of two celestial figures, of very delicately drawn though faded outlines. From the numerous fragments of I. i. b. 05 (Pl. CVII) the very expressively treated head of a man can be recovered. I. i. b. 01 (Pl. LXI) is another packet of fragments which may have belonged to a larger picture. In one of them appears a symbolic representation of the Moon, such as is often found at the top of 'Maṇḍala' paintings recovered from the Ch'ien-fo-tung hoard. *Remains of silk paintings.*

The numerous fine pieces of faience, worked in high relief and glazed bright green, probably formed part of an ornamented tiled roof. Floral scrolls and leaves are the decorative motifs of K.K. I. 06–7 (Pl. LII); i. 06–11, 16 (Pl. LII); also in the finial, i. 03 (Pl. LII). The antefixae of Chinese type in hard-burnt grey clay, i. 01–2, &c. (Pl. L), decorated at the circular end with a finely designed gorgon head in relief, are certainly from the roofing. The vigorously modelled pottery head of a monster, i. 014 (Pl. L), probably served as a gable end. I have had occasion before to call attention to the resemblance shown by the pieces of glazed faience to fragments from the tiled roof of a temple found in 1907 at the site of So-yang-ch'êng, which was occupied down to Sung times.[a] A very striking confirmation of close proximity in date and character of the two structures is furnished by the excellently preserved Stūpa model in clay, I. 0225 (Pl. LIII), which exactly reproduces all details of the small votive Stūpa So. a. 006, found at the So-yang-ch'êng temple, including the inscription of the usual Buddhist formula in Brāhmī characters at the base.[b] The ground-plan of both models is derived from that of which the Rawak Stūpa, excavated by me near Khotan in 1901, was the first example. *Fragments of faience from roof.* *Votive Stūpas in clay.*

The only other temple ruin within the walls which yielded remains of interest was the shrine K.K. I. ii, occupying a conspicuous position at the end of the road which led from the eastern gate towards the centre of the circumvallated area. It was built on a high platform of stamped clay, measuring about 82 feet by 63 (Pl. 20), as seen in Fig. 244; broad stairs once led up to it from the east. The shrine, which was badly decayed and appeared to have been repeatedly burrowed into, was built on a plan of trefoil shape, with a chapel about 12 feet by 17 facing the stairway across a central hall and somewhat larger rooms opening on either side of the latter. *Ruined temple K.K. ii.*

The platform stretching across the whole width of the central chapel, and once, no doubt, occupied by statues, yielded only some scanty fragments of stucco relievo once decorating Padmā- *Finds of MSS. and prints.*

[a] See *ibid.*, iii. pp. 1105, 1108; iv. Pl. IV.

[b] Cf. *ibid.*, iii. p. 1108; iv. Pl. CXXXIX. It may be noted here that the Stūpas near this temple of So-yang-ch'êng are constructed of the same kind of masonry, with bricks set on edge, as the shrines and Stūpas of Khara-khoto.

sanas, &c. But the debris filling the corners by the side of the main image base, perhaps that of a seated Buddha, had protected some relics of interest. From the southern corner were recovered some fifteen Pōthī leaves inscribed with written or block-printed Hsi-hsia text, besides numerous small fragments; several leaves in Chinese print or writing, also in Tibetan, besides a block-print with small Buddha figures, &c. In the northern corner I found the small well-preserved canvas painting, K.K. I. ii. 01 (Pl. LXXVII), showing a seated Buddha carefully drawn and painted in a style suggesting Tibetan influence. The piece had evidently belonged to the border of a larger composition and been cut out on purpose, probably to serve as a votive offering. There could be little doubt that the leaves of manuscripts and block prints found attached together in the other corner had been originally deposited for the same purpose.

Remains of Stūpas.

About 70 yards to the south of K.K. I. ii a row of three small Stūpas stood between two badly ruined shrines. The Stūpas had all been broken open, and the shrines showed signs of having been burnt. But in the scanty debris of the one to the west, K.K. I. vii, we found two wooden tablets inscribed with large Chinese characters. Of the structures, probably shrines, that once probably occupied the top of two clay-built terraces farther south it was impossible to trace even the outlines.

Ruins in SE. portion of interior.

The south-eastern portion of the interior appeared to have been occupied mainly by Sarais and the like. Two massive enclosures, whose walls of stamped clay were in one case over 20, in the other over 10 feet thick, were found empty even of refuse. Close to the east of the second of these there could be traced, partly covered by heavy accumulations of drift-sand, a large quadrangle about 50 yards square. There were signs that it had been intended originally to enclose it with thick walls of clay. But of this enclosure only the northern face, 20 feet thick, was actually found, while on the other sides only remains of much thinner brick walls survived. Into the western end of the massive clay wall a small room, K.K. I. viii, had been carved, evidently as a shelter.

A Muhammadan relic.

On clearing away the sand and clay debris that partially filled it, we found a well-preserved Chinese paper document; and a leaf, K.K. viii. 02. a (Pl. CXXXVII), from a Persian manuscript in fairly perfect condition. According to the information kindly furnished by the Department of Oriental Books and MSS. in the British Museum, it treats of the proper times for offering various Moslem prayers and probably dates from the early fourteenth century.

The find of the Persian MS. leaf was of special interest as a confirmation of what we knew from other sources of the early spread eastwards of Muhammadanism; it had already been carried from Central Asia into China by trade relations as well as by religious zeal, before the Mongol conquests brought China into direct connexion with Muhammadan countries of inner and western Asia. The Muhammadan domed tomb outside the south-western corner, which I shall presently describe, had previously convinced me that Khara-khoto, in the days when its Buddhist shrines were still being visited by the pious, also received Muhammadans within its walls.

[Here, too, were found the much-decayed pieces, K.K. I. viii. 01. a–d, of what Dr. Laufer has recognized as a paper-note dated in the Nien-hao Chung-t'ung (A.D. 1260–4), the first regnal period of the Mongol dynasty. Dr. Laufer believes 'this may lay claim to be the oldest paper-note now in existence'.]

Sand-buried Sarai.

Adjoining the clay wall on the southern side, brick walls appeared above the sand, indicating the position of rooms. The sand lay to a height of 6 to 7 feet in the room nearest to K.K. I. viii and rose still higher farther east. So when the clearing of that room revealed only straw and horse-dung, I did not proceed farther with a task for which my little band of lazy Mongol diggers was utterly inadequate. Yet who knows what other relics of mediaeval wayfarers may be concealed in this ruined Sarai, where the drift-sand heaped against the town wall behind it has protected its ruins?

Before proceeding to describe the remains outside the town, reference must be made to the group of four Stūpas built on the top of the walls in the north-western corner. As appears from the photographs in Figs. 241, 248, one of these Stūpas, which rises above the corner bastion, is still almost intact and forms a very conspicuous object in the general view of the ruined town. From the plan and elevation in Pl. 19 it will be seen that this Stūpa stands on a podium 18 feet square, and including it rises to a height of close on 30 feet in its present state. The crowning member which, as the still extant central pole indicates, must once have risen above the thirteen Chattras of the Tee, has fallen. The portion corresponding to the hemispherical dome of the original Stūpa form is reduced here, as in the smaller Stūpas outside the walls, to a bulb shape disproportionately low, thus giving to the whole structure a somewhat dumpy appearance distinctly reminiscent of Stūpa forms now common in Tibet. The whole is built of bricks set on edge, as are all the Stūpas of the site, and still retains a good deal of its thick white plastering. Stūpas on top of town wall.

While this corner Stūpa has escaped with comparatively little damage, another standing farther south has been completely destroyed except for its threefold base or podium. The same fate has overtaken two small Stūpas, seen in the plan, Pl. 18, flanking the head of the terrace on the north wall over which led the approach to the corner Stūpa.

Judging from the condition of the miniature votive Stūpas in clay which lay in masses among the debris around the bases of the wrecked Stūpas, it would appear that the work of destruction was here of recent date. As shown by corresponding observations at all Stūpas outside the walls, these little model Stūpas had been originally packed by the hundreds within the hollow drum resting on the top of the Stūpa base and also around the wooden shaft passing through the bulb portion of the Stūpa proper. I had found exactly corresponding deposits at the Stūpas of the So-yang-ch'êng site where burrowing had taken place.[10] Miniature votive Stūpas.

Specimens of these votive model Stūpas taken from different Stūpas of Khara-khoto are described in the List below under K.K. 090–101. They were everywhere produced from the same moulds, two types being distinguishable among these. In one type which is represented also by K.K. I. 0225 (Pl. LIII), the base or podium reproduces almost exactly the elaborate arrangement of the Rawak Stūpa base with its projecting plinth and flights of steps. In the other type a conical base, with four tiers of miniature Stūpas of similar shape shown close together in relief, takes the place of the above-described base. Both types are found, in sizes practically the same, also among the miniature Stūpas of So-yang-ch'êng, a fact that points strongly to contemporary occupation of the two sites. In both types the shape of the Stūpa dome and base differs strikingly from that shown by the actual Stūpas of the two sites, being evidently derived from a much more ancient model to which conservative tradition adhered in the case of votive offerings, while actual architectural practice had departed from it long before. The procedure of packing the interior of Stūpas with masses of such miniature models may well have been meant to symbolize in a modest—and cheap—fashion the ancient Buddhist custom, so well attested in India, of depositing under Stūpas built by royal patrons, &c., a multitude of sacred relics collected from earlier Stūpas. Types of votive Stūpas.

SECTION III.—REMAINS OUTSIDE KHARA-KHOTO

Our survey of the ruins examined outside the town walls may well start with the group of Stūpas which, as seen in Fig. 241, stood close to the north-western corner. They had all been badly damaged by burrowing, apparently long ago. In shape and manner of construction they resembled very closely those on the town wall. The northernmost and largest, though completely laid open Ruined Stūpas outside NW. corner.

[10] See *Serindia*, iii. p. 1105.

by a cutting, still stood to a height of close on 20 feet, including its podium. Here and at a group of six small Stūpas placed close together on one platform to the south, as roughly shown in the plan, Pl. 18, the finds were restricted to quantities of miniature votive Stūpas, such as have already been described, and of small clay tablets, showing in relief Buddha seated within a trefoil halo on a lotus seat and flanked by a Caitya representation on each side. Specimens of two slightly varying types are described in the List, under K.K. v. 031–4, 049–52, &c. (Pl. LIII). These tablets, too, had been made from similar moulds and deposited, together with the model Stūpas, in the cavity round the central shaft of the Stūpas. Similar small votive reliefs had been found by me in 1907 at Wan-fo-hsia and the Turfān site of Sassik-bulak.[1]

Votive deposit of MSS. and prints.

But a more interesting discovery was made on clearing away the debris at the foot of the three small badly decayed Stūpas (marked K.K. v. b in the plan, Pl. 18) which form a separate little group to the south of the larger Stūpa. Here a careful search brought to light packet after packet of well-preserved leaves from different Hsi-hsia texts, mostly written but some also block-printed (see Pl. CXXXVI, CXXXVII), and from large Tibetan Pōthīs (Pl. CXXXI–CXXXIII). They all lay embedded in sand mixed with debris of bricks from the fallen masonry of the Stūpas. I noted that several intact convolutes contained folded leaves from different Pōthīs and books. This suggested that detached leaves had been originally deposited at the Stūpa bases as votive offerings, after the fashion I had often observed at sites such as Dandān-oilik, Khādalik, Endere,[2] and subsequently heaped up by the wind in sheltered places where they had been preserved first by accumulating sand and then by debris. A rough calculation made at the time of packing showed that the total of complete leaves with Hsi-hsia text exceeded a hundred, that of Tibetan leaves being about half that number, with a great quantity of fragments. Mixed up with these manuscript and block-print remains were some drawings and diagrams, also a piece of blue silk painted with a lotus pattern, K.K. v. b. 01, probably the remains of a votive banner.

Finds at Stūpa K.K. III.

Finds of an exactly similar character were made at a mound that marked a completely collapsed Stūpa, K.K. III, situated less than a hundred yards from the north-eastern corner of the town walls. The mound rose only to about 10 feet above the gravel Sai, but still retained remains of the central wooden shaft. The slopes were covered with small votive Stūpas in clay, and on clearing the north foot of the base, numerous leaves, written and block-printed, in Hsi-hsia and Chinese, were brought to light. Tibetan writing was here rare and was found almost exclusively on the reverse of Hsi-hsia and Chinese papers. The finds included a small Chinese printed book. Fragments of painted silk banners, K.K. III. 01, 02–5, well drawn but faded by exposure, were also recovered here, besides numerous pieces of silk fabrics which probably also formed part of votive banners. Among other objects may be mentioned the clay mould of a rectangular plaque, K.K. III. 013 (Pl. LV), showing a seated Buddha in good modelling.

Remains of ruined shrine K.K. II.

A structure quite different in type from these Stūpas and of far greater interest was the ruin, K.K. II, which was pointed out to me on my arrival at the site as the place where Colonel Kozlov in 1908 had secured his great haul of manuscripts, paintings and other antiques.[3] It was situated

[1] Cf. *Serindia*, iii. pp. 1112, 1170; iv. Pl. CXXXIX.

[2] See *Anc. Khotan*, i. pp. 265, 274, 425; *Ser.*, i. pp. 155 sqq.

[3] See *Geogr. Journal*, Sept. 1910, pp. 306 sq. The account of this ruin and its contents, as given in Colonel Kozlov's paper, runs thus:

'Meanwhile investigations were undertaken to discover and concentrate our energies on new excavations, with the result that we turned to the tomb situated outside the fortress, about 300 yards from the western wall, and on the bank of the dry channel. This tomb was called by us "the Grand", and henceforth occupied all our time and attention. It yielded a large collection of books, rolls, manuscripts, and a quantity of specimens of Buddhist paintings executed in colours on thick linen cloth, on thin silken material, and on paper. Among a quantity of books and paintings, piled up in the most complete confusion, very interesting statuettes

close to the bank of the western river-bed and about two furlongs to the west of the western gate of the town, and presented, as seen in Figs. 257, 258, a scene of utter destruction. All that could be made out on first inspection was a brick-built platform about 28 feet square and 7 feet high, and on its sides heaps of debris of masonry and timber, mixed up in utter confusion with fragments big and small of stucco, originally painted and evidently once forming part of clay images. Frames of wood and reed bundles, which had served as cores for statues, lay about on the slopes and all round on the gravel flat. All these remains had obviously suffered greatly by exposure after having been thrown down. But even a slight scraping below the surface sufficed to show that, while the remains of paper manuscripts and prints had been reduced, where exposed, to the condition of mere felt-like rags, below the outer layer of debris they were still in fair condition. The careful clearing and sifting of all the 'waste' left behind in this sad condition by the first explorers of the ruin occupied us for fully a day and a half.

Indications of destroyed structure.

It must be hoped that, however rough the methods of that exploration had been, photographs and drawings of the structure before its destruction were secured. Not having, however, access at present to any publication in which these may have been reproduced,[4] I think it useful to record here such scanty indications as I was able to secure concerning the now vanished superstructure and its contents. The platform previously mentioned was built of bricks measuring 12" × 5" × 2", set on edge as in all other buildings of the site. The middle of the eastern side projected by one foot, but no remains of stairs leading to the top of the platform could be traced. On this there appears to have risen a circular superstructure with an approximate diameter of 13 feet. Of the wall enclosing this, however, only a very small segment survived, about 2½ feet high, indicating an approximate width for the wall of 3 feet 6 inches. No safe conclusion could be drawn from the small surviving segment of the wall as to the shape of the dome that it carried.

Contents of interior of K.K. II.

But even if the height of this dome was not greater than would result from a hemispherical shape, there would have been sufficient clear space for statues much over life-size to sit or stand under it in the centre. That at least one such statue, together with numerous smaller images around it, occupied the interior was stated to me by Shapir, one of the eight Mongols whom Colonel Kozlov is said to have employed besides his Cossacks on his work at the site. Shapir's statement on this point is supported by the fact that one colossal stucco head, unfortunately very badly damaged, was found by us in the debris, besides similar remains of approximately life-size stucco images. His further account was to the effect that all the space left between the images was found filled with

in metal and wood were discovered of high and debased art, models of tombs, and many other articles. The value of the discovered articles was much enhanced by the wonderfully excellent condition in which they had been preserved in the exceedingly dry desert climate. Indeed, most of the books and manuscripts, and even the paintings, retained a striking freshness after having lain in the ground for several centuries. Not only the leaves of the books were in good condition, but also the covers of paper or silk, most of them of a blue colour. With all these treasures was interred a *gegen*, probably, the bones leaning in a sitting posture against the northern wall of the tomb.

'The tomb itself, as may be seen in the accompanying illustrations, rises above the ground to a height of 25 to 30 feet, and consisted of a base, a middle course, and a conical top, half destroyed by time or the curiosity of man. In the centre of the base was fixed vertically a wooden pole without any kind of ornamentation at its top. On the floor of the tomb, round the pole, facing towards the centre, stood as many as twenty large clay statues of life-size, before which lay large books, just as before lamas reading their services. These books were of a thick paper of Chinese make with the letters Si-sia, generally found among the manuscripts of Khara-khoto.'

The illustrations referred to in this account are not found in the English translation reproduced in the *Geogr. Journal*, the drawing inserted there being a very rough sketch intended to show a cross-section, not of this ruin, but of the Muhammadan tomb, K.K. VI, to be described below.

As seen from the reference to the bones of a *gegen*, believed to have been interred within the 'tomb', Colonel Kozlov assumed the ruin to have been a burial-place.

[4] [For reproductions of photographs taken, see now above, p. 438, note 1; also p. 448.]

books, paintings, small idols and the like. For this statement, too, there is confirmation in the very large quantity of books, cult objects, &c., that Colonel Kozlov's brief report mentions as having been removed by him, and likewise in the abundance of the relics left behind, evidently as waste, among the debris that was thrown down in the course of this 'exploration'. According to Shapir the structure, found practically intact, had no visible entrance, but a hole existed on the top.

Account of Col. Kozlov's exploration.

[Since the above was written, the kindness of that distinguished Oriental scholar, Professor Serge d'Oldenburg, Perpetual Secretary of the Russian Academy of Sciences, has made accessible to me two important Russian publications—his own exhaustive monograph on *Materials for Buddhist Iconography from Khara-khoto* (St. Petersburg, 1914), and Colonel Kozlov's narrative of his expedition of 1907–9, *Mongolia, Amdo and the dead town Khara-khoto* (Moscow-Petrograd, 1923). The account given from the discoverer's record in the introduction to the former publication and reproduced in chapter XXV of his own book as to the place and manner in which the great discovery of the expedition was made is too brief to clear up all points of archaeological interest connected with the ruin or to answer all the questions raised by its surprisingly rich and varied deposits. But fortunately the three photographs reproduced in both publications suffice, even in the absence of a plan or other exact records, to acquaint us with the appearance of the structure before it was destroyed, and with the general character of so much of the sculptural deposits as remained *in situ* after the rough 'clearing' of the structure was done. That the ruin was that of a 'sepulchral Stūpa' is made certain by the discovery in it of a skeleton (see Col. Kozlov's *Mongolia, Amdo, &c.*, p. 555); but whether the recorded observations furnish sufficient evidence for the assumption that the clay sculptures, paintings and other sacred objects were deposited at the same time I am unable to judge. If the interior of the 'Suburgan'—to use the Mongol term applied by the Russian explorers to the ruin—was from the first, as seems probable, intended to hold this great deposit, it has supplied us with a very instructive instance of a practice not previously, as far as I know, attested by definite archaeological evidence.[5] The packing of other Stūpas at this site and also at So-yang-ch'êng with miniature votive models of Stūpas offers, however, an analogy.[6]

Colonel Kozlov's photograph of the 'Suburgan', before it was opened and levelled to the ground, does not admit of exact measurement of structural features. But it shows that there was a three-storied base, with boldly projecting cornices; an apparently circular drum, and above this a cylindrical dome. In general appearance the structure seems to have differed from the other Stūpas of the site, while in some respects its picture curiously recalls the ruined Stūpa seen by me at Thol in Hunza[7] and its Tibetan counterparts.]

Materials transmitted to Petrograd.

It is only from a full analysis of the antiquarian riches transmitted to the Asiatic Museum of the Russian Academy that a correct estimate can be expected of the date, extent, and true value of this great deposit. [The great artistic and iconographic interest of the very numerous fine paintings comprised among these finds has been discussed with full competence by Professor d'Oldenburg in a separate monograph; see above.] Of the importance of the materials recovered for the study of the previously almost unknown Hsi-hsia language, some idea may already be gained from certain publications of M. Ivanov in the Russian Academy's *Proceedings*, and from the summary information contained in a notice by the same Oriental scholar, translated in the *Journal Asiatique*

[5] Can the scene at the bottom of the Ch'ien-fo-tung painting, Ch. lviii. 001 (*Serindia*, ii. p. 1082; iv. Pl. LVIII; *Thousand Buddhas*, Pl. IX; p. 19), which represents the construction of a Stūpa, with gifts of manuscript rolls, sacrificial vessels, &c., set out on tables by its side, be possibly indicative of a later custom of this kind? Or is the practice, so abundantly attested, of depositing leaves from sacred texts at the base of Stūpas, as of images also, a reflex of it?

[6] See above, p. 445; *Serindia*, iii. p. 1105.

[7] Cf. *Ancient Khotan*, i. p. 20; Fig. 4.



253. RUINED DWELLING, EAST OF K.K. IV, NEAR KHARA-KHOTO.



254. RUINS OF DWELLING, EAST OF K.K. XIV, NEAR KHARA-KHOTO.



255. REMAINS OF DWELLING, EAST OF K.K. II, NEAR KHARA-KHOTO, PARTIALLY BURIED IN TAMARISK CONE.



256. RUINED SHRINE AND STŪPA, K.K. IV, KHARA-KHOTO.



257. BASE OF DESTROYED STŪPA, K.K. II, WITH DEBRIS OF STUCCO SCULPTURE, BEFORE CLEARING.



258. DEBRIS COVERING SLOPES OF BASE OF DESTROYED STŪPA, K.K. II, KHARA-KHOTO.

of 1920, as to the Hsi-hsia dictionaries and certain identified Buddhist Canonical texts included in the Petrograd collection.[8] Nevertheless it may be of use to record here some brief indications concerning the textual and other remains that the search of the 'waste' left behind by the fortunate discoverer of the site allowed us to recover; for their examination may throw some light on the general character of the deposit and thus help us to define its bearing upon archaeological questions connected with the whole site.

Preponderance of Hsi-hsia texts.

In the first place it is of interest to note that, among the literary remains recovered here, texts in Hsi-hsia language, whether written or printed, vastly preponderate. Leaving aside fragments of small size, the rough inventory prepared when these materials were transmitted to collaborators shows a total of over eleven hundred written, and about three hundred printed, leaves (many, of course, incomplete) in Hsi-hsia language, against fifty-nine and nineteen, respectively, in Chinese. This preponderance of Hsi-hsia texts, probably for the greater part of a Buddhist religious character, contrasts strikingly with the small proportion that Hsi-hsia records bear to Chinese records among the papers recovered from the rubbish-heaps of the town. Assuming that the deposits in both places date approximately from the same period, the conclusion suggests itself that Chinese writing prevailed, for purposes of secular business, even under the Tangut domination, over the cumbrous 'national' language and script favoured by the ruling dynasty. The great rarity of Tibetan texts from K.K. II—only thirteen complete folia are recorded in the inventory—is also of interest, when compared with the large number of Tibetan materials from K.K. v. The bilingual leaf, KK. II. 0234. k, Hsi-hsia with Tibetan, reproduced in Pl. CXXXIV, with a transcript kindly furnished by Dr. Laufer of Tibetan corresponding to Hsi-hsia characters, justifies the hope that the presence of complete texts of this kind among the Petrograd materials will facilitate progress in the study of Hsi-hsia. Uighur script is represented by a single written piece only, while of Brāhmī-Chinese prints we have two specimens (see K.K. II. 0293. a, Pl. CXXV).

Form of MSS. and prints.

Some quasi-palaeographical interest attaches to the fact that of the remains of Hsi-hsia and Chinese texts, whether written or printed, almost all are of the oblong book form, which, originating from the 'concertina' arrangement of leaves illustrated by later Chinese manuscripts from the Ch'ien-fo-tung hoard,[9] has been in regular use for block-printed literary products in China since the early Sung period. The number of manuscript remains in Hsi-hsia or Chinese in the roll form that prevailed all through T'ang times only slightly exceeds two dozen.[9a] They obviously represent an archaic survival, just as the use of silk as writing material instead of paper, of which a few Hsi-hsia manuscript pieces furnish examples, may claim descent from very ancient Chinese practice. In conclusion, passing reference may be made to the great quantity of written pieces torn into very small size that were discovered amidst the wreckage. It seemed difficult to believe that their reduction to scraps, often of minute size, could be due solely to careless digging, though of this, too, there was unfortunately evidence in booklets and convolutes that clearly had been cut through by the hoe or pickaxe. Is it possible to assume that those scraps owed their survival to a quasi-religious custom which compelled the preservation of all writing, however much defaced or injured?[10] The present Chinese practice of carefully collecting all bits of 'waste paper' from streets, shops, &c., in specially set up boxes, with a view to ceremonial burning would offer a certain analogy.

[8] See Ivanov, *Monuments de l'écriture Tangout*, in *J. Asiat.*, 1920, janvier–mars, pp. 107–9; also the articles of M. Ivanov there quoted from the *Izvêstiya* of the Russian Academy of Sciences, 1909, iii. pp. 1221–33, and 1910, v. pp. 831–6.

[9] Cf. *Serindia*, ii. pp. 765, 802, 920. As in these 'concertina'-shape manuscripts and in Chinese block-printed books, the reverse of the Hsi-hsia leaves (see Pl. CXXXVI, CXXXVII), whether written or printed, was left uninscribed.

[9a] For specimens see Pl. CXXXV, CXXXVII.

[10] For corresponding remains preserved in little packets among the manuscripts of the Ch'ien-fo-tung hoard, cf. *ibid.*, ii. p. 820.

Remains of stucco sculptures.

The remains of artistic or technical interest recovered from the wreckage were, as the Descriptive List shows, numerous enough. But after the account given above of the conditions in which they were found, it cannot cause surprise that almost all have badly suffered, whether at the time when the shrine was cleared—and demolished—or subsequently through exposure. Nevertheless a brief review of them will be useful if only to show how much it is to be hoped that the large and valuable haul of antiques which Colonel Kozlov's expedition carried away from this ruin may yet obtain that adequate study and publication which it deserves. The mass of sculptural fragments in stucco proves that the number of images of all sizes, from colossal statues down to mere figurines, must have been considerable relatively to the limited space afforded by the domed chamber.

Such parts as ears, fingers, hands from life-size or larger statues, K.K. II. 086, 94–6, 99, 114, 141, 225, &c. (Pl. LIV), had naturally a better chance of surviving than heavy heads or torsos in clay, of which several were found lying, bereft of their painted surface and almost unrecognizable, amidst the debris and on the ground below it. Of some Buddha heads of large size only the masks of faces modelled in harder stucco, 0185–7 (Pl. LIV), could be found. The colossal forearm, 0101 (Pl. LV), is of interest as it is clad in a peculiar type of gilded mail, with links resembling a 'caltrop', which appears also in several other stucco fragments, 084, 103, 163, 197 (Pl. LV), and which is seen also on the figure of Vaiśravaṇa in several Ch'ien-fo-tung paintings. It is highly probable that the fragments of mail found here, too, belonged to a Lokapāla image. To the figure of a demon crouching below a Lokapāla's feet may be attributed the fragment of a demonic face, 0184 (Pl. LIV), with wide open eyeball. Among the remains of small stucco images the following deserve special mention: the well-modelled heads of Buddhas and Bodhisattvas, 0188–9, 221 (Pl. LIII); the distinctly negroid-looking head, 0126 (Pl. LIII); the seated figures, 0108, 156 (Pl. LIII, LIV), and draped torsos, 0104, 175, 226 (Pl. LIII); and the curious animal skulls, 0118, 127 (Pl. LIII). Animal figures are represented by several small leopards, in different attitudes, 0145, 159, 170 (Pl. LIII), and the head of a dragon, 0190 (Pl. LIII). Among remains of wood-carving the dignified statuette of a standing Buddha, 01 (Pl. LXVI), with its curious look of a Gothic sculpture, is of distinct interest, and so also is the well-carved figure of a Śaivaitic divinity straddling over two monsters, 0312 (Pl. LIII).

Remains of wall paintings.

Numerous fragments of painted plaster attest that the walls of the chamber were adorned in tempera. Pieces like 0125, 138, 148, 166, 183 (Pl. LV), showing coffers with graceful grisaille ornamentation, look as if they had belonged to the vaulted ceiling. That figures formed part of the fresco decoration is shown by pieces like 0105, 118 (Pl. LIII). Other fragments like 0145, 155, exhibit very elegant designs in grisaille. It is probable that a fine fresco panel which had been cut out and was found by us in one of the recesses carved into the interior of the northern town wall was brought away by Colonel Kozlov's party from this shrine and then accidentally left behind there.

Fragments of silk paintings, &c.

The remains of paintings on silk, 08, 10, 11, 24, 45, 74, 81, 311, had all suffered more or less by exposure; but there could be no doubt that in arrangement and general style they corresponded closely to the silk banners recovered by me in such numbers from Ch'ien-fo-tung. The fragment 011, with its graceful floating figure of an Apsaras, is not inferior to the average of the latter in design and technique. In 035, 66, we have fragments of canvas banners, like those of Ch'ien-fo-tung.

Book illustrations by block print.

But far more numerous are the block-printed designs representing Buddhist divinities and other sacred subjects, which were found among the packets of printed leaves from Hsi-hsia texts as book illustrations or as detached pictures. The reproductions contained in Plates LXII–LXV, and the detailed descriptions in the List (pp. 480–98) given of those pieces of which Mr. Andrews has been able to make a careful examination, show the considerable interest attaching to these pictorial remains in spite of all the damage they have suffered, partly at the time of the original 'clearing'

of the great deposit and partly through subsequent exposure. These plentiful examples of block illustration in Sung times with their wealth of ornamental details are of obvious importance for the history of wood-engraving as practised in the north-western marches of the Empire. At the same time they show the development which local Buddhist art underwent subsequently to the latest phase that we find represented among the corresponding relics from the 'Thousand Buddhas' of Tun-huang.

Block-printed pictures and designs.

Of large compositions which in a more or less fragmentary condition are to be found among these block prints from K.K. II. I may specially mention the pieces K.K. II. 0229. a and 0239. c (Pl. LXIV) showing a scene, as yet unidentified, in which figures a large serpent; the representation of a Buddhist paradise in 0233. b, 0280. a, 0290. a (Pl. LXII); the series of what seem to be Jātaka scenes in 0284. a (Pl. LXIII); the 'Maṇḍala' picture, 0238. a (Pl. LXII). But far more numerous are the blocks showing groups of Buddhas or Bodhisattvas, inserted in the text after the fashion of miniatures in devotional manuscripts of mediaeval Europe (Pls. LXIII, LXV). Many of the decorative designs used for framing the block-printed columns of Hsi-hsia characters or for separating individual figures, &c., are elegant, even if the engraving is coarse. The definite indication of Tibetan influence in some of the block prints fully accords with evidence supplied by certain Ch'ien-fo-tung paintings of the same influence affecting Buddhist art as it prevailed in this border region centuries earlier.

Pen-and-ink drawings.

Among the pen-and-ink drawings of which fragments were also recovered, though in a lesser number, we find some rapidly executed but distinctly spirited figure sketches in purely Chinese style, such as K.K. II. 0247. a, e; 0275. e, i; 0313. a, d, g (Pl. LVIII–LXI). Of special interest as specimens of Chinese landscape composition in Sung times are rough sketches such as the rocky gorge K.K. II. 0313. b (Pl. LXI); groups of trees growing amidst rocks, 0275. h. With these must be grouped also such sketches for landscapes as seen in K.K. II. 0313. c (Pl. LX). Just as at the 'Thousand Buddhas' of Tun-huang, so here we meet with drawings like K.K. II. 077; 0275. e, f (Pl. LX), which have been pricked for use as pounces, while in 0276. bbb we have the fragment of a stencil for a decorative pattern cut through paper bearing Hsi-hsia writing. These pictorial remains, in their tantalizingly fragmentary state, can only increase our hope that the wealth of far better preserved pictures which reached the Asiatic Museum of the Russian Academy of Sciences from this great deposit may yet be made accessible to us through an adequate publication.

Silk fabrics.

I may finally refer to the numerous specimens of silk fabrics. They include, besides different coloured pieces of plain silk, K.K. II. 02, 4–7, 012, &c., which probably belonged either to flags or votive offerings, a series of printed silks, produced by the 'resist' process, 016, 19, 32–4 (Pl. LXXXVI, LXXXVII), or by blocks, 054. Damasks are represented in 015, 30, 37, 50, 53. Figured polychrome silk is found on the wallet 018 (Pl. LXXXIII), while the silk appliqué band, 067, with its fine dragon design work in gilded silk, might well have formed part of a manuscript cover resembling that found at Ch'ien-fo-tung.[11] A small piece of fine silk tapestry, 036, completes a range of textile remains that may offer interesting material for comparison with the corresponding fabrics from the Ch'ien-fo-tung hoard.[12]

Chronological limits of deposit.

After this synopsis of the remains yielded by our search of the 'waste' left behind by the Russian explorers, a few words may not be out of place concerning the period from which this remarkable deposit is likely to date. It is evident that a sure conclusion could be based only upon the far more abundant and better-preserved materials in the keeping of the Asiatic Museum at Petrograd. But if we take into account the general character of the relics, whether texts or artistic objects, together with the record to be discussed below of the taking of 'Etzina' by the Mongols

[11] Cf. *Serindia*, ii. pp. 1049 sq.; iv. Pl. CVI, CXI.

[12] See *ibid.*, ii. pp. 897 sqq.

in A.D. 1226 and the subsequent destruction of Hsi-hsia rule, the first quarter of the thirteenth century may be accepted as the *terminus ad quem* after which such a deposit could not have been made. On the other hand, the prevalence of texts in that Hsi-hsia script which was only invented and introduced by the Tangut ruler Li Yuan-hao about A.D. 1032 precludes an earlier date than the second half of the eleventh century. It must be hoped that the discovery of dated texts in the Petrograd collection will make it possible still further to reduce the chronological range between these two limits.[12]

Small ruins near K.K. II.

Of the small ruins shown by the plan in Pl. 22 quite close to K.K. II, that to the east consisted only of a brick-built platform about 12 feet square, with the scanty remains of a completely wrecked superstructure whose character was no longer recognizable. A low mound to the south of K.K. II, when excavated, disclosed only the badly decayed brick walls of a rectangle measuring 19½ by 21½ feet. The walls were only 1½ foot in thickness, and the bricks measured 12" × 6" × 3". No find of any sort was made within the interior, which was filled with coarse sand and gravel. The structure may have served as quarters for attendant priests of the shrine.

Domed structure K.K. VI.

The only structure remaining to be described in the immediate vicinity of the town walls is the domed building, K.K. VI, seen in Figs. 251, 252. It stands at a distance of about 30 yards to the south-west of the south-western corner bastion and rises still to its original height of close on 23 feet, though part of the dome on the north side has fallen in. Apart from this and some minor damage to the side walls, the structure has suffered but little, and still retains most of its original plastering inside and portions of it also on the outside eastwards. The chief features, as shown by the plan in Pl. 21, are a domed hall, 18½ feet square, within, and a large vaulted porch projecting on the east. By means of a succession of projecting niches in the four corners, as seen in Fig. 272, each terminating in a pointed arch, the square of the hall is reduced to an octagon, which in turn by a similar device of niches is made to bear the circular drum of the high dome. A corresponding architectural arrangement is applied to the vaulted portion of the porch. The front of the latter is given a very massive appearance by the outward slant of its flanking walls. The outer corners of the walls enclosing the square hall are rounded off into semicircular buttresses, also slanting outwards, thus creating for the whole an impression of great strength. For other architectural details the reader may be referred to the photographs and the elevation and sections shown in Pl. 21. The masonry consists of sun-dried bricks, about 16" × 8" × 4" in size, and its horizontal courses distinguish it entirely from that used in other buildings of the site.

Muhammadan character of structure.

The structure in its plan, purpose, and architecture is wholly Western and unmistakably meant for a Muhammadan tomb or 'Gumbaz'. Its style is plainly Saracenic, but it must be left to others more competent than myself to determine whether the details of style offer any indications as to date of construction. The interior was found completely empty; but divers holes in the plaster flooring and walls showed that 'treasure-seekers' had been at work here too. We know from Marco Polo's account of the 'Province of Tangut' that towards the close of the thirteenth century, when Mongol dominion over these parts as well as over the rest of China was fully established, Islām had its adherents among the population of these north-western marches, though, no doubt, Buddhism vastly prevailed. It is to this later phase of Khara-khoto's history, when Marco Polo knew it as the 'City of Etzina', that I am inclined to ascribe the construction of the tomb. Whose mortal remains it was meant to guard, whether those of some local Muhammadan notable or official, or

[12] No conclusion as to the relative chronology of K.K. II by comparison with the other shrines of the site can be drawn from the fact that the miniature votive Stūpas found here, too, in great quantity, K.K. II. 0109–11, 121–3, are of the type of K.K. 0090–6, &c., represented at most of the Stūpas of Khara-khoto; for the form of these small votive offerings was evidently stereotyped throughout the occupation of the site.

of some wealthy trader or other traveller who died here on a journey, it would be useless to guess. So much, however, may be stated without too great risk of chronological error, that his resting-place is probably the oldest distinctly Muhammadan building now extant in the westernmost portion of China proper.

Small Stūpa to NE. of town.

About three-quarters of a mile to the north-east of the north-eastern corner of the town, a small Stūpa of a shape different from the rest and less 'Tibetan' in appearance attracted attention (Fig. 256). It rises on a base 11 feet square as a tapering dome to a height of about 15 feet. A square member crowning the dome probably once carried a set of Chattras. The western side of base and dome had been dug into, and a thick layer of miniature Stūpas covered the slope of debris.

Ruined temple, K.K. iv.

A little to the east of the Stūpa a low mound, K.K. iv (see plan in Pl. 20), covered with gravel and fragments of semi-tubular roof tiles, was found, when cleared, to contain the remains of a small temple. It consisted of a cella, the interior of which measured 19 feet by 22, and of which the walls had decayed to within two feet from the floor even where least broken. Remains of delicately drawn wall-paintings in tempera survived on parts of the southern wall, the best preserved of the panels showing a sylvan scene with trees, hills, and a stream with two figures crossing it. As the pieces we succeeded in removing have not as yet been mounted no details can at present be given. An image platform, measuring 12 feet 3 inches by 11 feet 6 inches, with a well-proportioned plinth (see Pl. 20), occupied the centre and still rose in parts to a height of 2 feet. Of the statues in stucco that had once stood on it nothing survived but the fragments described in the List. They consist principally of remains of richly painted drapery and of ornamental details, most of which are gilded (Pl. LIII). A life-size finger, K.K. iv. 05; an ear, 08, and toes, 024, all gilt, give no clue to the figures to which they once belonged. The remains of pieces of manuscript, about ten in number, were all in Chinese, a circumstance in striking harmony with the distinctly Chinese style of the wall-paintings and the non-Tibetan type of Stūpa.

Ground outside town.

Apart from the ruins now described, the ground outside the town walls and between the two river-beds comprised only a couple of small Stūpas, completely demolished, of the usual local type that we had passed on the way to K.K. iv; some low mounds of solid brickwork scattered to the south and south-west of the town which might have once carried Stūpas; and the scanty remains of walls of what seemed to have been quarters forming a small suburb outside the eastern town gate. A road leading through it from the bank of the dry river-bed eastwards was still traceable amongst this debris. Potsherds of the same type as were found in the refuse deposits of the town were plentiful. But nowhere else did the bare gravel flat show similar evidence of former occupation.

Section IV.—THE REMAINS OF A RURAL SETTLEMENT AND MARCO POLO'S 'CITY OF ETZINA'

Reconnaissance NE. of ruined town.

The reconnaissance on which I had sent out Afrāz-gul immediately on our arrival at Khara-khoto on May 26th, and which kept him engaged during the following two days, had led to the discovery of ruined dwellings and other indications of former occupation scattered amidst tamarisk-cones on ground lying east of the town site and extending for over six miles from SSW. to NNE. (Map No. 45. D. 1). A number of coins and the specimens of pottery brought back by Afrāz-gul, together with small objects of the 'Tati' type, indicated that these remains dated back approximately to the same period as the ruined town. To the north-east of the latter, on the stretch of bare gravel, overrun here and there by dunes, between the two branches of the dried-up river, no traces of occupation had been found by him, except a small rectangular enclosure (Pl. 20) about a mile and a half beyond K.K. iv, built of masonry of the usual Khara-khoto type. Its character could

not be determined. On visiting it myself, I noted the almost total absence of potsherds near it. Yet the line of what looked like the embankment of an old canal seemed to pass it north-eastwards.

Ground to E. of dry river-bed.

On June 1st I spent a long day, fortunately undisturbed by the prevailing sandstorms, in examining the ruins discovered in the course of Afrāz-gul's reconnaissance. Proceeding north-eastwards from Khara-khoto, we crossed the eastern branch of the dry river-bed at a point where its width was about 375 yards. Though occupied partly by small tamarisk-cones, its course was quite well marked. Beyond it we soon found the bare clayey ground covered with pottery debris, the sign of prolonged occupation, and came upon traces of two canals, about 10 feet across at the top, which had once watered it. Their direction was to NNW., suggesting that the channel once feeding them came from the south and was quite distinct from the river-bed we had crossed. Then we passed eastwards for about two miles across a belt of dunes, 30 to 40 feet high, which extended parallel to the river in exactly the same way as the 'Dawāns' of sand that line dead river-beds in the Taklamakān.[1]

First ruined dwelling.

Beyond this stretched, as far as the eye could see, ground covered, in parts thickly, in others less closely, with tamarisk-cones. Only here and there was it broken by short ridges of dunes or open patches of sandy soil. The whole vividly brought back to my mind all the aspects of that area, now deceptive desert but once occupied by flourishing settlements, which I had repeatedly visited between Uzun-tati and Achma, to the north of Domoko.[2] As soon as the riverine 'Dawān' lay behind us, we came upon the first of the numerous ruins, some small, some fairly large, that are scattered over this extensive area and undoubtedly mark old farms and homesteads. This first ruin, E. of K.K. II, as seen in Fig. 255, though quite small, presented features characteristic of most of these old dwellings. From the side of a big tamarisk-cone emerged the walls of a fair-sized room, built of regularly set and fairly uniform lumps of clay, with reed layers between every four courses, and resting on a thick foundation of what looked like hemp matting. The ground in front, not protected by the accumulation of fine sand that the tamarisk roots held together, had undergone wind-erosion and been lowered 5 or 6 feet below the level of the foundation. This effect of wind-erosion was equally visible in small Yārdangs, from 3 to 5 feet in height, which appeared almost everywhere on open patches of ground, though not so close together as in the Lou-lan area. Their general direction was from north-west to south-east, indicating the prevailing direction of the winds.

Effects of wind-erosion.

Remains of agricultural settlement.

The remains of dwellings, which could be traced at intervals for a distance of over four miles eastwards, were mostly larger, as appears from the plans of the structures marked E. of K.K. III, IV, VII, VIII, X, in Pl. 20, 22. But the constructive features were the same, and the conditions of the ground on which they survived similar. No detailed description of individual ruins is therefore needed here. The considerable number of rooms comprised in the better preserved of the ruins indicated a comparatively high standard of rustic comfort, such as I had found generally prevailing in the Chinese agriculturists' quarters that I had seen in Kan-su. Near most of them there still rose the dead trunks of elms and other cultivated trees, as seen in Fig. 253, which represents dwelling IV. From the regular arrangement of the quarters, from the trees that had been planted near them and the abundance of pottery remains of superior type, including much glazed ware and porcelain, I was led to conclude that the agricultural settlement which once flourished here must have been essentially Chinese in its population.

Ruined dwellings K.E. VIII–X.

This impression was greatly strengthened when we resumed our survey of the ruins eastwards, after a reconnaissance of some miles to the north-east of ruin VI had brought us to the apparent limit

[1] See *Serindia*, i. pp. 241 n., 451 sq.; iii. 1239; above, p. 320.

[2] Cf. *Anc. Khotan*, i. pp. 458 sqq.; *Serindia*, i. pp. 197 sqq.; iii. pp. 1245 sq.; above, p. 129.

of ancient cultivation in that direction. We found the dwellings VIII–X situated on comparatively open ground, showing practically no erosion and covered with a good deal of living scrub, such as the presence of subsoil moisture at no great depth could alone account for. We could still make out quite clearly on this ground the rectangular outlines of large perfectly levelled fields, and the small irrigation cuts that brought water to them. It did not need the discovery of two neatly cut octagonal stone rollers, such as are still used nowadays by Chinese agriculturists in the southern oases for rolling their fields, to convince me that cultivation had been practised here by a people thoroughly wedded to traditional Chinese methods. I should have found it difficult to believe that these fields and farms had been abandoned to the desert as many centuries ago as the ruins on eroded ground near by and as the ruins of Khara-khoto, had not the conclusion been forced on me by the discovery in all of them of potsherds of identical type, and also of a number of coins close to the dwellings IX and X. Among these eight coins, four are Sung pieces, while two bear the legend *Wu-chu*, and one shows the T'ang Nien-hao *K'ai-yüan*.[8]

Large dwelling K.E. XIV.

Here as elsewhere among these ruins very little sand had accumulated within the broken walls where tamarisk-cones did not completely cover them. The total absence of remains of household furniture, roofing timber and the like, suggested that the ruins had been exploited for a long time after the settlement had been wholly or partly abandoned. The same conditions were observed at the large dwelling XIV (Fig. 254; Pl. 22), which, with its numerous rooms arranged round three sides of a walled court and a large outer enclosure, looked quite imposing. Part of the latter was buried under the slopes of a big tamarisk-cone close by, which by its very height, close on 30 feet, sufficed to indicate that the dwelling had been abandoned at an early period. For refuse heaps which might have furnished datable remains we searched in vain; nor could our Mongols show us the temple or *miao* of which some of them had apparently heard in connexion with this ruin.

Ground crossed on return to Khara-khoto.

Turning to the south-west from this ruin, we crossed a succession of high tamarisk-covered ridges separated by stretches of gravelly soil, where potsherds of the same type as those found at Khara-khoto were plentiful. Some three miles from ruin XIV we again came upon more open ground; but the lateness of the hour prevented me from visiting five more dwellings, XV–XIX, which Afrāz-gul had found stretching along a line to the south-west. According to his detailed description these were badly decayed, and debris of old pottery was to be found all around them. In two places he had crossed small canals running eastwards, and elsewhere he had found stones for rolling, as previously described, and also stones of hand-mills. With the exception of two unidentified pieces, all the seven coins found in this southernmost portion of the once occupied area belonged to Sung issues. The more westerly line of march that I myself had to follow in order to return to Khara-khoto brought us to a well-preserved canal which could be followed with ease for more than half a mile across a bare flat of clay. It was 10 feet wide between the top of the banks, which rose to 5 feet above the level of the plain, and was 3 feet deep in the middle. It ran from WSW. to ENE., but turned off to the west where we left it, thus clearly suggesting that it came from the river-bed which passed south-east of Khara-khoto.

[8] The fact that the eighth coin showed the Nien-hao *Chia-ch'ing* of A.D. 1796–1821 might have puzzled me greatly, had I not subsequently learned by chance at Kao-t'ai that cultivators of that oasis, which, though fertile enough, offers no chance of expansion to meet the pressure of increasing population, had formed a plan for bringing this abandoned land east of Khara-khoto (known to them as *Hei-ch'êng*, the 'Black Town') once more under irrigation. They had carefully examined the ground and believed that, given an adequate number of settlers to take up the venture, a canal bringing water again from the Ümne-gol could be made. It is likely enough that the modern coin was left there by one of these prospectors, or else by other visitors whom the tradition of this old colony had brought to the site.

Our Mongols also, as it proved, knew of these remains, but were quite definite in the assertion that no attempt at reclamation had been made since their Torgut forefathers took to grazing on the Etsin-gol, centuries ago.

Ceramic miscell. small remains.

Among the small objects picked up during our surveys of this deserted settlement and described in the List below, the numerous specimens of fine pottery are probably of most interest. They show a great preponderance of glazed ware of a type identical with that represented at Khara-khoto. The most characteristic pieces are those bearing decorative designs, chiefly floral, produced by sgraffito treatment from a rich brown or greenish glaze with which the whole jars, &c., were first covered. An effective background is furnished by the buff pottery surface from which the glaze has been scraped off. The specimens marked K.E. v. 020; x–xi. 01; xiii. 03–4; xiv. 010 (Pl. LVI, LVII) may be specially mentioned as good illustrations of the pleasing effects produced. The first specimen, the fragment of a large jar, shows by its size of 19 inches by 13 the large dimensions to which this sgraffito process could be applied and also that the ware must have been produced locally. The small pottery fragment K.E. 01 (Pl. LVII) deserves mention on account of the peculiar technique, of which no other example was found at this site, thin laminae of differently coloured paste being used to produce the decoration. Decorated porcelain, comparatively rare, is represented by pieces like K.E. ii. 01 (Pl. LVII), xv. 01–2 (Pl. LI, LVII). The fragment of a bronze mirror, K.E. iii. 04, is of interest because its raised border shows a grape scroll such as is known from examples ascribed to Han times. The small *netsuki*-shaped jade ornament, K.E. xiii. 01, shows an elaborate floral design in good 'open'-work. Curious, too, is the miniature silver spoon, K.E. xvi. 01.

Numismatic evidence.

It only remains for me to mention that the coins picked up by us at different points of the once cultivated area fully bear out the numismatic evidence already noted in connexion with the dwellings ix and x.[4] Out of a total of seventeen coins, eleven belong to Sung issues, the Nien-haos represented ranging from A.D. 1017–22 to A.D. 1086–94. Of the other Chinese pieces two bear the legend *Wu-chu* and two that of *K'ai-yüan*, while another is the modern 'cash' previously mentioned. One non-Chinese copper coin has not so far been identified. The direct chronological conclusion to be drawn from the coins found at this settlement is thus practically the same as that indicated by the coins found within or quite close to the ruined town.

Marco Polo's 'City of Etzina'.

At the same time the discovery of the remains of this extensive agricultural settlement has a very important bearing upon the chronological aspect of the questions raised by the ruins of Khara-khoto itself; for it removes, I believe, the last doubt which might otherwise have been felt as to the identity of Khara-khoto with Marco Polo's 'City of Etzina'. The account that the great Venetian traveller has recorded of it runs as follows:[5]

'When you leave the city of Campichu [i. e. Kan-chou] you ride for twelve days, and then reach a city called *Etzina*, which is towards the north on the verge of the Sandy Desert; it belongs to the Province of Tangut. The people are Idolaters, and possess plenty of camels and cattle, and the country produces a number of good falcons, both Sakers and Lanners. The inhabitants live by their cultivation and their cattle, for they have no trade. At this city you must needs lay in victuals for forty days, because when you quit Etzina, you enter on a desert which extends forty days' journey to the north, and on which you meet with no habitation nor baiting place. . . . When you have travelled these forty days across the Desert you come to a certain province lying to the north', and as the city of this the next chapter names *Caracoron*, i. e. Kara-korum, the old Mongol capital on the river Orkhon.

Identification of Marco Polo's *Etzina*.

Sir Henry Yule had already looked for Marco's Etzina on the river flowing from Kan-chou, which earlier European writers drawing on Chinese maps had mentioned under the name of *Yetsina*. He was rightly guided to this location by the reference made to the place in Gaubil's 'History of Chinghiz', which mentions the capture of Yetsina in A. D. 1226 by the Mongol conqueror,

[4] See Appendix *B*.

[5] Cf. Yule, *Marco Polo*, i. pp. 223 sq.

at the outset of his last campaign against the Tangut kingdom.[6] Subsequently Palladius indicated Chinese references of the Mongol period to the lake '*I-tsi-nay*', and noted information with regard to vestiges of an old town still to be seen in its vicinity, as well as to traces of an old route leading from I-tsi-nay to Kara-korum. Professor H. Cordier in his edition of Sir Henry Yule's great work recorded conformably with the above his conviction that 'Etzina must be looked for on the river *Hei-shui* called Etsina by the Mongols',[7] and when Colonel Kozlov's discovery of Khara-khoto had become known, he did not hesitate to identify this site with the city named by Marco Polo.[8]

Chronological doubts.

Yet if our evidence were confined solely to the antiquarian finds yielded by Khara-khoto itself and the observations made there it might have been difficult, perhaps, to suppress all doubt as to the conclusive character of this identification. There was in the first place the fact that the great mass of textual remains at the site were Hsi-hsia, and thus presumably dated back to the period of Hsi-hsia or Tangut rule that had closed fully fifty years before Marco Polo's arrival at Kublai Khān's court. On the other hand, there was no definite proof that the town had survived the destruction attending the Mongol invasion which had put an end to that rule.[8a] In the second place, considering the physical conditions now prevailing along the whole lower course of the Etsin-gol, the modern visitor to the site might well have been induced to conclude from the total absence of traces of cultivation in the immediate vicinity of the ruined town that agriculture could never have been carried on near it. Yet Marco Polo's account distinctly tells us that 'the inhabitants live by their cultivation and cattle, for they have no trade'.

Accuracy of Marco Polo's statements.

Our survey of the extensive area eastwards with its unmistakable remains of agricultural settlements completely removes such doubts as the character of the ground around the walls of Khara-khoto and the present absence of all cultivation in the Etsin-gol delta might otherwise have raised. Moreover all topographical indications combine to bear out the accuracy of Marco Polo's statements. The reckoning of a twelve days' ride from Campichu or Kan-chu to the 'city of Etzina' agrees remarkably well with the distance of 278 miles that our traverse reckoning checked by cyclometer showed for our direct journey from Khara-khoto to Kan-chou. If the journey were done, with far more convenience no doubt, by following the course of the Kan-chou river, this distance would be increased only by some sixteen miles and still remain easily practicable for mounted men in twelve days. A reference to our map and to those of Colonel Kozlov's surveys north of the terminal lakes of the Etsin-gol will show that Marco is perfectly correct in stating that 'Etzina' lies 'towards the north on the verge of the Sandy Desert'. That 'Etzina' belonged 'to the Province of Tangut' would be certain on geographical grounds even if there were not the Hsi-hsia texts of Khara-khoto to prove it. For the statement that 'the people are Idolaters', i. e. Buddhists, the remains of Khara-khoto furnish equally convincing evidence. The accuracy of the reference to their possession of 'plenty of camels and cattle' was brought home to us by the large herds of cattle kept by the present Mongol occupants of the delta, and by the numerous large droves of camels which we met there. About the local breed of falcons which Marco Polo mentions, I regret not to have made proper inquiries. Opportunity to use them for sport certainly abounds.

Importance of route along Etsin-gol.

Marco Polo's account makes it clear that 'Etzina' owed its importance in his day, and probably earlier also, to the fact that it was the last place where caravans from Kan-chou or Su-chou bound northward into the heart of Mongolia could secure supplies for men and beasts. Reference to the Russian 100 verst to the inch map or to any other map of Mongolia reveals the fact that a route

[6] See Gaubil, *Histoire de Gentchiscan* (Paris, 1739), p. 49.

[7] Cf. Yule, *Marco Polo*, i. p. 225, where the notice of Palladius (*J. N. China Br. R. A. S.*, 1875, x. pp. 10 sq.) is quoted.

[8] See Cordier, Marco Polo, *Notes and Addenda*, p. 53 sqq.

[8a] [But see now above, p. 441, for dated documents of the Mongol period.]

along the terminal course of the Etsin-gol finds its direct continuation in an almost straight line across the Altai region towards Erdenitso, the site of Kara-korum, and thence towards Kiakhta, where it meets the great Siberian trade route from Peking. The traveller following this route to the site of Kara-korum would pass no cultivation. Thus Marco Polo's statement that no permanent 'habitation nor baiting place' is met with *en route* still holds good.

Marco Polo on desert northward.

The description that he gives of this 'desert which extends for forty days' journey to the north' accords so closely with modern knowledge of this vast Altai region that it may well be quoted here as further proof of the exactness of Marco's information regarding the route that led through 'Etzina'. 'In the summer-time, indeed, you will fall in with people, but in the winter the cold is too great. You also meet with wild beasts (for there are some small pine-woods here and there), and with numbers of wild asses.' Taken in conjunction with the accuracy of all he tells us of the route to 'Etzina', these details and some others recorded of 'Caracoron' distinctly suggest that they had been gathered by personal observation. Considering that Messer Maffeo and Messer Marco Polo are stated by the text which Sir Henry Yule adopted to have dwelt a whole year at Kan-chou 'when on a mission',[9] it appears to me likely that Ser Marco himself, in spite of the great distance, had found occasion and time for a visit to the old Mongol capital. Such a visit would best explain why Marco should have singled out for special mention a locality like 'Etzina', which in itself could never have claimed much importance.[10]

Abandonment of Khara-khoto.

The question how long after Marco Polo's time occurred the abandonment of Khara-khoto, and of the settlement for which it doubtless served as a local centre of cult and defence, is one which the materials at present at my disposal do not permit definitely to answer. It is probable that the much ampler materials deposited at Petrograd may furnish data making it possible to fix with approximate accuracy the *terminus ad quem* for the continued occupation of the site. Meanwhile I must be content to indicate two possible causes which deserve to be taken into account in connexion with its abandonment. One is the state of insecurity to which this isolated settlement of peace-loving Chinese cultivators must have been exposed after the downfall of the Mongol or Yüan dynasty. When the Empire under Ming rule had established its system of rigid seclusion, such protection from raids and invasions as the Tangut kingdom, and later on Mongol power, had afforded to the Kan-su marches was no longer available for a colony occupying so far advanced a position as that of 'Etzina'. For the same reason the route leading along the Etsin-gol northward must have greatly lost in importance or been abandoned altogether, as was for centuries the route through the Lop Desert.

Story of destruction of Khara-khoto.

Colonel Kozlov in the preliminary account of his journey, as translated in the *Geographical Journal*, reproduces at length a story current among the Etsin-gol Torguts about the siege and final destruction of Khara-khoto.[11] It bears in all respects the character of folk-lore legend, certain features of it, such as the final sortie of the beleaguered king through a cutting in the wall, the burying of his huge treasures in a well close by, &c., being clearly suggested by details of the ruins which would particularly strike popular imagination.[12] As the Torguts themselves state that on

[9] Cf. Yule, *Marco Polo*, i. pp. 220, 223, note 5.

[10] Marco Polo's reference to Lop, i. e. Charkhlik, as 'a large town at the edge of the Desert', would seem to furnish a close parallel; cf. Yule, *Marco Polo*, i. p. 196. This small oasis, which could not have comprised in his time more than a modest village or two, derived its importance solely from the fact that it was the only place where travellers from the Tārim basin to China could provision themselves for the long and difficult journey through the Lop Desert to Tun-huang: see *Serindia*, i. pp. 318 sq.

[11] See *Geogr. J.*, October, 1909, pp. 387 sq.

[12] See above, pp. 438 sq.

The name of the last king, *Khara-tsian-tsiun*, who by aiming at the imperial throne is supposed to have brought about his destruction by a Chinese army, distinctly looks like that of an eponymous hero, being derived from the Mongol designation of *Khara-khoto* with the probable addition of the Chinese title *chiang chün* 將 軍.

their first move from Dzungaria to the Etsin-gol, said to have taken place four centuries ago, 'their ancestors found the ruins just as they are now', it appears very doubtful whether any historical value whatever can be attached to this legendary tradition. But there is one point in it that deserves to be noted, because it indicates a correct perception of what must have been a determinant factor, if not in the actual abandonment of the site, at any rate in preventing its reoccupation and the reclamation of the area once cultivated.

Alleged diversion of river.

According to the legend 'the imperial army, being unable to take Khara-khoto by assault, determined to deprive the beleaguered city of water' by diverting the river Etsin-gol, and effected this object by blocking the original channel with bags of sand. Of these bags remnants were said to have been found even in recent times.[13] We did not succeed in clearly locating the head of the old channel when we searched for it on our return journey near Borgasu, where according to our Mongols it had been. But in the light of our observations along the Etsin-gol and of the corresponding experience gained at almost all deserted sites along the southern edge of the Taklamakān, there is much to support the belief that difficulties in connexion with water had played a great part in the final abandonment of the site, though not quite in the way related by the legend. No artificial diversion of the river-bed could have lowered the level of subsoil water at the town site so quickly and to so great an extent as to render its wells useless during a siege. But it is quite certain that the shifting of the river from the old bed passing Khara-khoto to the bed now followed by the Ikhe-gol would inevitably cut off irrigation from the once cultivated area, which lies on an average fully six miles to the east of Khara-khoto, and fourteen miles from the nearest point of the present river channel; for it is clear that the canals upon which its cultivation depended must have taken off from the Etsin-gol branch, which is still clearly visible at Khara-khoto and which was traced by Lāl Singh for more than five miles farther to the south-east.

Change of river affecting irrigation.

Such changes of the river-bed are bound periodically to threaten all canals maintained in a deltaic area, and if for some reason the settlement at the time was unable to cope with a change serious enough to affect the volume of water received at the head of its canals, gradual abandonment of the previously cultivated lands would necessarily ensue.[13a] An attempt to determine now whether such a change had actually occurred in the case of the settlement east of Khara-khoto would have involved a very detailed survey of whatever traces of the old canals still survive. Neither the advanced season nor the time available would have permitted us to undertake this task. But even if it had been otherwise, I question whether the result would have yielded evidence sufficiently definite to exclude consideration of another possible reason for the abandonment of the area, a reason most potent in a climate so arid as that of the Etsin-gol delta: I mean 'desiccation', whether general or local.

Diminution of water-supply in river.

All my observations during our marches along the Etsin-gol and its delta combined to impress on me the probability that 'desiccation', i. e. in this case a diminution of the water-supply brought down by the river, had played a very important part in producing the conditions now displayed by the old settlement. It may not have been the sole or immediate cause of its abandonment. But it certainly is the reason why the site has not been reoccupied since, and why no reclamation of the once cultivated ground could, I believe, be successfully attempted at present. Even at the oasis of Mao-mei, more than 150 miles higher up the river, and with conditions of ground far more favourable for the maintenance of canals, serious difficulty had been experienced for some years past in securing a sufficient discharge in the canals early enough in the season, and much land that had once been cultivated appeared to have been abandoned recently.[13b]

13 See *Geogr. J.*, October, 1909, p. 388.

13a Cf. above, p. 140 sq.; *Serindia*, i. pp. 203 sqq.

13b See above, p. 409.

Want of water in spring.

Below that oasis we had found in May the bed of the Etsin-gol quite dry, and this condition was said to be quite normal for the season. Farther down, the eastern main branch of the delta, the Ikhe-gol, had, as already stated above, received no water for three years past even during the summer floods. On our return journey up this river branch, it was not until June 12th that we came upon the first flow of water in it at Bahān-durwuljin (Map No. 45. B. 2), filling scarcely one-fifteenth of the width of the bed with a volume of less than 200 cubic feet per second. Yet even this first harbinger of the summer flood was hailed by the Mongols with delight as having come about a month sooner than it had for years past in any of the branches of the delta. At Khara-khoto, as everywhere else in this region where cultivation depends on irrigation, an adequate supply of canal-water during the spring must have been absolutely essential for all crops. No such supply could be secured nowadays anywhere in the Etsin-gol delta. Nor is it possible to assume that this need of moisture during spring could have been supplied in earlier times by local precipitation; for in that case the ruins of Khara-khoto and their antiques would certainly not have come down to us in such excellent preservation.

Volume of Etsin-gol reduced since Middle Ages.

Thus the conclusion appears justified that the volume of water reaching the Etsin-gol delta during spring has undergone considerable diminution since late mediaeval times. What the cause of this diminution may be is a question that need not be considered here.[13a] So much, however, should be noted, that it cannot be attributed to an increased demand for irrigation water in the oases higher up the river; for we know that cultivation in these oases is still far from having recovered all the ground it had lost through the protracted devastations of the Tungan rebellion and the consequent depopulation. Nor is it possible to suppose that, at the period when Khara-khoto was inhabited and agriculture carried on in its vicinity, the amount of water lost to the rivers of Kan-chou and Su-chou through irrigation was less than it is in our times; for Marco Polo speaks of *Campichu*, i.e. Kan-chou, as a 'very great and noble' city, 'the capital and place of government of the whole province of Tangut', and mentions 'numerous towns and villages', also in the province of Sukchur (Su-chou).[14]

Return to Ikhe-gol.

The rapidly increasing heat had made work at Khara-khoto very trying both for the men and for the camels, upon which we depended for the transport of water. So I was glad when, our work at the site being completed and Lāl Singh having returned from his survey towards the terminal lake basin, I was able on June 5th to move my camp back to Tsondul on the Ikhe-gol and there to arrange for our journey south to the foot of the Nan-shan. It was high time to let our hard-worked camels depart for their much-needed summer holiday, and fortunately it was possible to send them for this purpose to a cooler place, the Kungurche hills, to the east of the terminal basin of the Etsin-gol. I had previously heard of these hills at Mao-mei, as the summer grazing ground to which the large herds of camels owned there are regularly sent. As the locality was described as lying on the very border of independent Mongol territory, I decided to send Surveyor Muḥammad Yāqūb with the camels, partly for the sake of additional safety and partly in the hope of his eventually being able to extend survey work over practically unexplored ground to the north-east.

Surveyor sent to Kungurche hills.

This hope remained unfulfilled; for when the broad valley of Kungurche (Map No. 47. A. B. 2) was reached after five marches from the Torgut chief's standing camp, the hills overlooking it from the north and east were found to be closely guarded by Mongol pickets, who would not permit the Surveyor to advance into independent Mongolian territory. Plucky enough in person, but lacking my old surveying companion Lāl Singh's indefatigable energy and resourcefulness,

[13a] [For observations on this question, see now my paper in *Geogr. J.*, lxv (1925), pp. 489 sq.]

[14] Cf. Yule, *Marco Polo*, i. pp. 217, 219.

Muḥammad Yāqūb then resigned himself to staying with the camels and remained content with the survey of the route to Kungurche and of the neighbouring ground.

It was due to the alertness and keen sense of curiosity of my head camel-man Hasan Ākhūn, who besides taking devoted care of his charges on all my Central Asian journeys never failed to show an intelligent interest in 'old things',[15] that this summer excursion of my brave camels was attended by an archaeological discovery. Ḥasan Ākhūn was marching his camels leisurely back along the Etsin-gol in order to reach Mao-mei in time for our prearranged reunion by the last week of August, and was grazing them to the east of Shara-nazek (Map No. 44. C. 4), about 25 miles NNW. of Khara-khoto, when he came upon the remains, amidst scrub and Toghrak jungle, of a walled enclosure which, according to his account, resembled Khara-khoto but was smaller. He subsequently showed the ruined site to Muḥammad Yāqūb, who recorded its position on his plane-table about four and a half miles to the east of Shara-nazek and close to the right bank of the dry river-bed known as Owang-gol. The Surveyor described the walls of stamped clay as enclosing a square of approximately 200 yards and the interior as containing a large ruin, presumably of a temple, besides numerous small structures of which the timber was sticking out above the sand and debris. Ḥasan Ākhūn compared the condition of these smaller sand-buried ruins with that in which we had, in 1900, found the shrines and dwellings of Dandān-oilik.

Ruined site near Owang-gol.

From some pieces of decorated pottery, E.G. 07–9 (Pl. L), brought away by Muḥammad Yāqūb, which include an antefixa with a fine relief design of a dragon, and an ornamental brick, as described in the List, it seems safe to conclude that the ruined temple at which they were picked up was a structure of a style not unlike that represented by the similar remains of K.K. I. i within Khara-khoto. Occupation of the site down to a somewhat later time is suggested by a collection of manuscript and other remains which Ḥasan Ākhūn stated that he had secured on his first discovery of the site, apparently by burrowing at the foot of a ruined Stūpa of small size outside the circumvallation. I must, however, note that the description he gave me of the find-place was vague, and that he omitted to show it to the Surveyor when they visited the site together. Nevertheless the character and condition of these remains support the belief that they were found by Ḥasan Ākhūn in the manner he alleged, near the place in question.

Find of Ḥasan Ākhūn.

They consist mainly of a mass of detached paper leaves of which the vast majority contain Tibetan writing or print,[15a] some two hundred being complete or nearly so, besides a much larger number of fragments. In addition some twenty leaves contain Mongolian script. Very curious are two small books and a few detached leaves of very thin Chinese paper covered with extremely cursive writing, apparently Tibetan accounts. On a number of leaves and fragments we have drawings and block-printed diagrams Tibetan in type and Buddhist in character, as described in the List below (E.G. 01, 03–4). Tibetan work of a rough kind is also seen in the small painting on canvas, E.G. 02, showing a seated divinity. The much-defaced wooden board, E.G. 012 (Pl. LXVI), resembling the painted panels of Dandān-oilik and other Khotan sites, is decorated with a block-printed mystic design. Among small objects in wood may be mentioned the panel, 010 (Pl. LXVI), decorated on its convex side with the head of a dragon in gilt gesso over a red-lacquered ground, and the wooden lacquered frame, 011 (Pl. LXVI), which evidently once served to protect a small painted panel. As this last piece was picked up by Muḥammad Yāqūb at the ruined temple, it helps to confirm Ḥasan Ākhūn's statement about the provenance of his own finds.

Tibetan and Mongolian leaves.

The fact that all the decorative remains brought in by Ḥasan Ākhūn are distinctly Tibetan in character does not furnish an absolutely conclusive chronological criterion as to the site; for

Late date of remains.

[15] Regarding the useful help rendered before by Hasan Ākhūn in our search for remains, cf. *Anc. Khotan*, i. pp. 312, 379; *Serindia*, ii. p. 575.

[15a] For specimens, see Pl. CXXXII.

Buddhist cult of the Tibetan type had reached the marches of Kan-su before the Hsi-hsia dominion was established.[16] But the total absence of Hsi-hsia texts among the written or printed remains from this source is certainly significant, and suggests that the deposit from which they were obtained is of considerably later date than the similar deposits found by us at Khara-khoto. In this connexion attention may be called to a notice recorded by Palladius, according to which 'Khubilai, disquieted by his factious relatives on the north, established a military post near Lake I-tsi-nay, and built a town, or a fort on the south-western shore of this lake. The name I-tsi-nay appears from that time.'[17] Is it possible that Hasan Ākhūn's site, which lies about ten miles to the south of the Sokho-nōr shore (before its recent shrinkage), is in some way connected with the post established by the great Emperor of the Mongol dynasty? A careful examination of the site and a search for other remains in that vicinity must be recommended to some future explorer.

Section V.—LIST OF ANTIQUES FROM KHARA-KHOTO AND NEIGHBOURING SITES

OBJECTS FOUND AT SITE OF ADŪNA-KORA

A.K. 01. Fr. of pottery, from wall of vessel of hard buff paste, slightly thickened at rim, glazed both sides dark greenish brown. Rim very slightly overhanging both inside and out and a slight depression outside about ⅜" below edge give a subtle cyma curve. Edge unglazed; inside and outside surfaces slightly ribbed as though from wheel, but may be due to polishing process after leaving mould. Surface minutely crackled, prob. from atmospheric action. 2½" × 3¼" × av. ¼".

A.K. 02. Fr. of pottery, from wall of vessel of extremely hard pale red paste (changing to grey at rim), faintly ribbed horizontally; coated with dark brown glaze; both sides streaked with dark red brown as though flicked on very wet and allowed to run and mingle with dark glaze. Edge unglazed and perhaps broken. Paste slightly spongy; cf. T. XLIII. l. 03. 2¼" × 1⅞" × ⅜". Pl. LI.

A.K. 03. Fr. of stone from wall of vessel, colour of dark slate. Easily cut with knife. Perhaps steatite. 1¼" × 1¼" × ⅜".

A.K. 04. Stone whorl, drilled from both sides. Diam. 1¼" × 1/12".

A.K. 05. Fr. of pottery, from lip of vessel in yellowish grey paste, glazed brown in and out. Lip prismatic, ⅜" thick. 1½" × 1 3/16" × ¼".

A.K. 06. Fr. of pottery, from handle (?) of vessel in buff paste partly glazed brown. Near unglazed end, which is thickened, a hole pierced from side to side before firing. 1⅛" × ⅞".

A.K. 07. Fr. of laminated pottery, composed of a brown and an ivory coloured paste, which lie side by side as in some millefiore beads. The fracture shows a grain like that of wood, and consequently the surfaces also; but the lines of the grain are evidently partially controlled. Glazed bright green, which appears dark over the brown paste, and accentuates the grain. For much finer specimen, see K.E. 01. 1¼" × ⅞" × ⅜". Pl. LI.

A.K. 08–14, 016, 017. Frs. of pottery in grey ware of celadon type, with well-designed floral patterns in low relief under the grey-green glaze, inside. 010, 016 with radiating lines on outside suggesting fluting. For pattern of border on 010, cf. Bushell's *Chinese Art*, ii. Pl. 11. Gr. fr. 3⅜" × 2 5/16". Pl. LI.

A.K. 015. Fr. of pottery in grey-green celadon type ware, from lower part of bowl, with five lines of Chinese inscription incised under glaze on inside. Fluting lines outside. Ring base. 2 9/16" × 2¼". Pl. LI.

A.K. 018. Fr. of porcelain, from wall of vessel, white paste, cut into facets externally. Floral pattern outside, in blue line and wash. 1 3/16" × 7/16". Pl. LI.

A.K. 019. Fr. of pottery, white, of porcelain hardness, glazed very pale grey-green, with faintly incised pattern inside. ⅞" × ⅝" × 3/16".

A.K. 020. Fr. of porcelain, from wall of bowl, very thin and slightly translucent, glazed very pale grey-green, with faintly incised pattern of delicate lines inside. Thin smooth rounded edge. 1¼" × 1⅛" × 1/24".

A.K. 021–5. Frs. of pottery, of porcelain hardness, but non-translucent; glazed ivory colour. *022* has thin out-turned rim. *023* has faint, raised, scalloped line inside. Gr. fr. (*025*) 1⅜" × 1¼" × ¼".

A.K. 026, 028. Frs. of pottery of hard grey paste, glazed pale yellow outside, with lines and small circles in dark brown, slightly incised. Circles made with small

[16] Cf. *Serindia*, ii. pp. 839 sq., 861, 865.

[17] See Yule, *Marco Polo*, i. p. 225, referring to Archimandrite Palladius' paper, in *J. North China Br. R. A. S.*, x (1875), pp. 10 sq. The source from which P. drew this information does not appear to be mentioned.

cylindrical tool; brown pigment has buried itself in the glaze. Remains of brown glaze inside 026. Cf. K.E. XIII. 01 (Pl. LVII). *026.* 1¼"×1¼"×⅜". *028.* 1⅜"×7/16"×3/16". Pl. LI.

A.K. 027. Fr. of pottery, of buff paste glazed and decorated similarly to A.K. 026 and 028, but glaze flaking off. Brown inside. For another example, see K.E. XIII. 04 (Pl. LVII). 1⅝"×1"×3/16". Pl. LI.

A.K. 029–36. Frs. of pink stone (agate?); some worked. *035* worn smooth. *036,* cabochon, prob. part of natural pebble. Largest fr. ¾"×⅝"×½".

A.K. 037. Fr. of bronze, from rim of vessel (?), thickened at inner edge, broken on all other sides. Outer surface very slightly convex. 2⅛"×1 5/16"×1/32". Edge 1/16". Pl. LI.

A.K. 038. Fr. of iron object, scrolled into loop at one end, which tapers; thicker end broken off. Much oxydized and split. Small hole in centre of thick end. 1⅝"×5/16".

A.K. 039. Small bronze standing figure with pointed nimbus; pose slightly curved as though resting on L. foot; R. arm hanging, L. arm raised from elbow; high keel-shape head-dress. Broken away at knees. Much worn. 1⅝"×½". Pl. XI.

OBJECTS FOUND OR EXCAVATED AMONG DEBRIS AND REFUSE HEAPS WITHIN TOWN WALLS, KHARA-KHOTO

K.K. 01. Fr. of wooden comb, in two pieces. Semi-elliptical back. Long teeth extending to within ⅜" of back. Close-grained heavy wood. Well made. 2⅜"×2⅛". Pl. LXVI.

K.K. 02. Frs. of silk and cotton; a string of cotton rag, with pieces knotted to it. Two pieces of closely woven silk damask; pattern fragmentary. Twill weave. Length *c.* 23".

K.K. 03. Fr. of printed paper; with block-print lozenge border and part of Tibetan characters on illustration. Very rough. 4"×1½". Two plain pieces 7"×2½".

K.K. 04. Fr. of silk; buff, with small lozenge diaper. 6"×1½".

K.K. 06. Fr. of silk; white; plain. 5½"×1⅞".

K.K. 07, 08, 017. Three frs. of bronze sheet. Gr. fr. 08, 1⅝"×1¼" (bent).

K.K. 09, 010. Two flint frs.; pale buff. Gr. fr. 1"×⅝"×⅜".

K.K. 011. Glass bead; spherical, white; pierced for thread. Diam. ⅜".

K.K. 012. Fr. of green stone, soft. ⅞"×⅝"×½".

K.K. 013. Inscribed wood. Small wooden tablet coated with black lac; oblong, with two upper corners cut off segmentally. On each side are two Chinese characters, cut through the lac, so that they show white. A small hole drilled laterally just below cut corners. Well preserved. Length 1 13/16"×9/16"×3/16". Pl. LXVI.

K.K. 015. Fr. of bronze, flat, with raised surface near one edge. Corroded. Gr. M. 1½".

K.K. 016. Iron hook. 1⅜"×½".

K.K. 018. Fr. of iron dagger-blade, of rhomboidal section. Corroded. 2⅜"×⅝"×¼".

K.K. 019. Iron staple, made from flat strip bent over to form loop; the opposite end bent and scrolled. 2⅜"×13/16" (loop).

K.K. 020. Tang and part of blade of iron implement. Knife (?). 2"×⅝".

K.K. 021. Fr. of pottery. Solid pyramidal foot of vessel with part of body attached. Hard, buff; partly glazed with dark brown. At bottom, potter's mark deeply incised. Diam. of foot 2", height 2⅛". Pl. LVII.

K.K. 022. Lead disc; flat, irregular; drilled near centre. 13/16"×⅞"×⅛".

K.K. 023. Fr. of pottery; base (?) of vessel; in two pieces decorated with annular channels. Pale buff, extremely fine texture, covered with very thin buff glaze. Diam. 1½", height 1¼". Pl. XI.

K.K. 024. Fr. of pottery; from foot and bottom of bowl (?); ivory-coloured, porcelainous, with colourless glaze. Ring-foot and slightly raised band immediately outside it. Very flat spread. Bottom pierced through. 3"×1⅞".

K.K. 025, 026. Fr. of porcelain; from rim and wall of vessel, in two pieces; glazed in and out with dark grey-green (celadon). Edge of thin rim unglazed. Inside, a pattern in low relief below the glaze, consisting of a hollow-sided hexagon within which is a faint floral pattern. Beginning of other hexagons at sides and bottom. 4⅛"×3½"×⅜".

K.K. 027, 029. Frs. of pottery; hard grey body covered with grey-green glaze. Celadon ware (?). Faint pattern in relief under the glaze, inside. *027* from wall of vessel, 1⅜"×1". *029* part of ring-foot and wall, 1½"×⅞".

K.K. 028. Fr. of pottery; buff, glazed. 1½"×⅞".

K.K. 030. Stone axe-head, grey, similar to K.E. v. 03, with larger hole, narrower butt and sharp blade. 1⅜"×⅝"×⅜". Pl. LXVI.

K.K. 035. Pottery whorl, with large hole. Roughly made. Diam. 1⅛"×⅝" (nearly).

K.K. 036. Fr. of pottery, from rim of small bowl of porcelain-like paste, semi-translucent glaze, starch blue. Lip slightly out-curved, with faint rib parallel on outside about ⅜" below. Good glaze. 2⅜"×1 5/16"×⅛".

K.K. 037. Fr. of pottery, from rim and side of bowl in porcelain-like paste, semi-translucent glaze, pale olive. Lip ⅛" wide, sharply out-turned and curving slightly upward. Outside moulded in shallow tomato-like ribs. Cf. K.K. 0106. 1 13/16"×1⅛"×3/16". Pl. LVII.

K.K. 038. Fr. of pottery, from lower part of bowl, in white paste glazed pale green on both sides; with slightly incised curved lines inside under the glaze, which is unintentionally crackled. 2¼″ × 1¾″ × av. 3/16″. Pl. LVII.

K.K. 039–44, 062, 063. Frs. of pottery, from the same or similar bowls of red pottery (sometimes burnt grey); mostly glazed green, tint of which varies according to variation in kiln heat and perhaps on account of their being parts of different vessels.

Paste moderately washed. Glaze crackled unintentionally and rather spongy. Purple streak on 040 and 042, on which glaze is blue. Foot and portion just above, unglazed. Shape, echinus, rim slightly in-turned. Rivet-holes through glaze only on 041 and 044. Other examples are K.E. XIV. 011–15, K.K. 0103, 0104, 0109–111. Largest fr. 3¼″ × 2¼″ × av. ¼″.

K.K. 045. Fr. of pottery, vessel of porcelain-like paste, rather spongy, pierced with hole in form of acute pointed quatrefoil (Gothic form). Painted blue outside, a line round quatrefoil and blue ground outside line.

Glaze very pale blue-green outside. Inside, surface of paste vitrified, pale straw colour. 2⅝″ × 1½″ × ⅛″. Pl. LI.

K.K. 046. Fr. of pottery from vessel similar to T. XLVII. 09, but inside, overglaze lines of red forming border, and below, beginning of further pattern. Small spots of green between some of the lines. 1¾″ × 1¼″ × ⅛″.

K.K. 047. Fr. of pottery, from wall of vessel of porcelain-like paste; low translucency; very pale olive-green glaze, with blue pattern inside and out. Inside, plain band bordered by double lines, and floral pattern below.

Outside, similar band with foliate scroll; below, panels outlined with broad and thin lines, within which pattern indeterminate. Cf. K.E. XV. 02, Pl. LVII. 1⅝″ × 1½″ × ⅛″ (full). Broken on all sides. Pl. LI.

K.K. 048. Fr. of pottery, from wall of vessel. White paste, spongy, glazed outside starch blue. Outward form, convex on each side of central horizontal keel. Inside concave without indication of external keel. 3⅛″ × 2″ × ¼″.

K.K. 055. Bronze ring. Diam. 1⅛″, thickness 3/16″.

K.K. 056. Bronze tag or part of clasp. Form shield-shaped with upper edge rising into central single stem which supports a cross-bar with two ribs round centre and knob at each end. Centre of shield open. Two rivets at back, one at point of shield and other in centre of cross-bar. For object of similar use but slightly different in form, see *Ser.* iv. Pl. XXXVI, L.A. 0056. 1″ × 13/16″. Pl. LXVI.

K.K. 057, 059, 067. Three bronze frs. *067*, a flat tag with one end slightly rounded and the other square. Marks of three rivets at back. Other frs. mere waste scraps. ⅞″ × ¼″.

K.K. 058. Cast-iron band, semicircular, with two square knobs projecting from outer surface, equidistant from centre and 1½″ apart. In two pieces. 3¼″ × ½″ × ⅛″. Pl. XI.

K.K. 060, 061, 064, 065. Iron nail, (*064*) with broad head. Length 2⅝″. *060*, nail head (?): diam. ⅝″. *061*, nail head; diam. ⅝.″ *065*, nail with head missing; length 1⅝″.

K.K. 064. a. Jade bead, spherical, white, drilled and threaded on silver wire. Diam. *c.* ⅛″.

K.K. 066. Fr. of iron knife; long thin tang shouldered at junction with blade which spreads equally on each side and is very thin. Length 4⅛″, width of blade ⅝″. Pl. XI.

K.K. 068. Silver (?) rod, gradually tapering from thickened and rounded end. Perhaps used for applying antimony to the eyes. 2⅜″ × ⅛″.

K.K. 069, 070. Two frs. hard black slag. *c.* 1¼″ long.

K.K. 071. Agate or carnelian bead, spherical, not drilled. Diam ¼″.

K.K. 074. Wooden knife handle, split and bound round with cord. Evidence of metal ferrule to secure blade. Section flat. 4″ × ⅝″ × ⅜″. Pl. LXVI.

K.K. 075, 082, 083. Beads. *075*, turquoise, diam. ⅛″; not drilled. *082*, pink agate, diam. ⅛″; not drilled. *083*, blue paste, 7/32″ × ⅜″; large hole.

K.K. 076, 079. Frs. of bronze sheet. *076* tapering each end, and roughly hook-shaped at one end. 3¼″ × ¼″. *079* slightly tapering, cut angular at narrow end and hole drilled near. Punched spiral ornament on one side. Bent. 2″ × ⅜″.

K.K. 077. Iron knife; tang and part of blade, similar to K.K. 066. 2⅝″ × ⅝″.

K.K. 078. Iron nail or chisel; square section, tapering to point, thin and spatulate at head. Length 3⅛″, breadth at head 7/16″. Pl. XI.

K.K. 080. Fr. of iron saw; double-edged, one side finer than the other. Teeth have good pitch, but no 'set'. Length 2¼″, width of blade 13/16″; depth of large teeth 7/32″, depth of small teeth 3/32″; space between points—large 5/16″, small 3/16″, thickness of blade 1/32″. Angle of leading edge of large teeth approx. 90°, following edge about 40°. Small teeth irregular. Pl. LXVI.

K.K. 081. Bronze rod; tapering, broken at both ends; about ⅝″ of its thicker end ornamented in relief with four-ribbed meander, running lengthwise and therefore forming series of reversing spirals. Thinner end square, from angles of which ribs of meander proceed. 3⅛″ × *c.* 3/16″. Pl. LXVI.

K.K. 085. Coral. Rough lump, worked into buckle or slide form, and carved on part of surface with Chin. cloud scrolls. 1 5/16″ × ⅝″ × ⅜″. Pl. LXVI.

K.K. 086. Carnelian bead; hexagonal, chamfered away on both sides of greatest circumference, forming 12 facets. Flattened at poles and drilled. Diam. 7/16″.

K.K. 0102. Fr. of bottom of glazed stoneware bowl (celadon?) with ring-foot. Hard, light grey body; glaze each side dull grey-green, with incised pattern of curving lines inside under glaze. Two rivet-holes in outside. H. extant 1⅝″; diam. of foot 2⅜″; gr. width 5⅜″; thickness of wall 3/16″. Pl. LVII.

K.K. 0103. Fr. of glazed pottery; body coarse red, with black granulations. Glaze on either side (but stopped short of bottom on outside), greenish-blue. Cf. K.K. 063. Gr. M. 3⅜", thickness 3/16" to 5/16".

K.K. 0104. Fr. of glazed pottery; body greyish-buff; glaze each side delphinium blue, somewhat crackled. Cf. K.K. 040, 042, 043. Gr. M. 2⅛", thickness 3/16" to 5/16".

K.K. 0105. Fr. of glazed porcelainous ware, from rim of bowl; hard white body, glaze each side faint greenish-blue. Traces of end of incised design under glaze on inside, and of incised lines under glaze outside. One large rivet-hole on outside, not pierced through. Plain rim, slightly everted. 1 13/16" × 2⅝" × ⅛".

K.K. 0106. Fr. of bowl of glazed porcelainous ware, rim and side. Body hard greyish-white; glaze each side light green, somewhat crackled. Rim ½" wide, turned well out and up, with slight curve. Outside of wall moulded in wide faint vertical ribs. Cf. K.K. 037. Gr. M. 2⅝", thickness ⅛". Pl. LVII.

K.K. 0107. Fr. of glazed porcelainous ware, light grey body; glaze each side dull light green, with band of six faint incised lines below rim on outside, and part of curved incised line pattern below. Rim plain, slightly everted. 1 13/16" × 2⅛" × ⅛".

K.K. 0108. Fr. of glazed porcelainous ware, thick white body; glaze each side smooth jade-green. Gr. M. 2⅛", thickness c. ⅜".

K.K. 0109. Fr. of glazed pottery; fine red body fairly washed, unevenly fired to grey; glaze each side pale greenish-blue. Gr. M. 2⅛", thickness ⅜".

K.K. 0110. Fr. of glazed pottery; thick dark grey body; glaze each side dull light blue, stopping short of bottom of fr. on outside. Gr. M. 2⅛", thickness ½".

K.K. 0111. Fr. of bottom of glazed pottery bowl, with ring-foot. Thick body of fine hard grey clay. Glaze each side thick bright blue, with purple splash on inside.

Glaze has rolled down in thick wave to immediately above ring-foot on outside, and collected to depth of over ½" at bottom inside. Cf. K.K. 040, 042, 043. H. extant 1¾", diam. of foot c. 2¼", thickness of wall nearly ⅜", gr. width of fr. 3¼". Pl. LVII.

K.K. 0112. Fr. of glazed stoneware bowl, with low ring-foot and wide-spreading walls. Body of fine hard buff clay, covered inside with faint greenish glaze almost colourless, and having at bottom lozenge-shaped group of nine spots in olive-green glaze.

Outside, so far as preserved, unglazed; but was perhaps glazed higher up. Gr. M. 4⅛", h. extant 1¼", diam. of base 3", thickness of wall 5/16". Pl. LVII.

K.K. 0113. Corner of glazed pottery tile, with raised rim ⅜" wide. Fine hard reddish buff body. Projecting surface of rim and field within, orn. with mottled plant (?) design in green and blackish-grey on rust-red ground subsequently rubbed off part of rim. One edge of tile covered with black glaze; orn. a sgraffite buff scroll, pattern between parallel borders, upon black ground. Other edge of tile is plain black glaze.

Underneath, tile has two deep incised lines bordering edge, and is glazed brown so far as to cover both of these; remainder of surface highly polished. 2⅛" × 2⅝", thickness ½" to ⅝". Pl. LVII.

K.K. 0114–15. Two frs. of large glazed stoneware vessel. Sides very slightly curved. Fine hard buff body; glaze each side dark olive-brown, scraped away on outside to leave pattern of annular band and large wreath of leaves (?) on buff ground, which is stained dark red by superficially removed glaze. Cf. K.E. v. 020 (Pl. LVI); XIV. 010 (Pl. LVII), &c. Inside ribbed horizontally. Gr. M. 4¾", thickness ½" to ⅜". Pl. LVII.

K.K. 0116. Fr. of glazed stoneware vessel, with slight shoulder turning in to wide flat rim. Body of hard buff clay; glaze each side dark olive-green, the glaze scraped away on outside to form ground for pattern left in the glaze.

This consists of band of pendent petal and sepal pattern (akin to egg and tongue pattern) immediately below rim, plain band round turn of shoulder, and wreath of large leaves (?) below. Same type of ware and ornament as K.E. v. 020 (Pl. LVI), K.E. x–xi. 01, and K.E. xiv. 010 (Pl. LVII, *q.v.*). H. 5¼", gr. width 5", thickness (average) 5/16". Pl. LVII.

K.K. 0119. w. Fr. of paper, with part of impression of block in black. Subject, a lotus leaf upward growing like a bowl with the scalloped rim turned down. Leaf is ribbed, and on each section of rim is a roughly drawn V-shaped ornament with dot between the limbs of the V. To R. of leaf a scroll. Leaf and scroll tinted yellow. Above are a few lines, perhaps drapery. Rough work. Paper thin and stained. Part of one edge only intact. 8" × 6".

K.K. 0121. jj. Fr. of fine canvas, showing L. eye and temple of Buddha face painted in encaustic (?) colours. Eye, eyebrow and hair in black. Flesh discoloured to dull brown. From votive picture. 1¼" × 1⅞".

K.K. 0152. ee. Piece of thin cord, tightly twisted and elastic. Prob. wool. Length 25¾".

K.K. 0199. v. Fr. of paper, with part of impression from two blocks, one red the other black. Device consists of groups of parallel straight lines about ⅛" apart and 4" to 4½" long from one end to the torn edge of paper. Spaces between lines are filled solid black (or red) for a distance of ⅞" from end; sometimes one space, sometimes two, and sometimes six together are thus filled, leaving next space open.

A few cursive characters are written between groups of lines. On reverse is faint pink impression from Chinese seal and two black written Chinese chars. Two edges of paper intact, other two torn away. 8¼" × 6½".

K.K. i. 01. Fr. of pottery tile; grey ware, tubular, with

Chin. chars. in black on outer side. Sharp impression of fine canvas inside. 3¼" × 3" × ⅛". Pl. L.

K.K. i. 02. Lacquered tray; concave, circular; of coiled cane covered with paper on both sides and lacquered red. In very bad state. Diam. 7", height *c.* 1".

Contents: a strainer of roughly woven canvas stretched on bent twig and bound with string. 4½" × 3½". Pl. C.

K.K. iii. 01. (E. of). Fr. of lacquered silk gauze, in two pieces with very even and open mesh, coated with pigment, perhaps lac, and dried under pressure; has the appearance of extremely fine pierced zinc (unique). Mesh about 40 × 54 to sq. inch. Compare open-work fabric of M.B. I. iii. 014. Larger 2" × 2½".

K.K. iii. 02. Frs. of sheaf of corn.

K.K. iv. 01. Lacquered wood bowl; saucer-shaped, with deep ring-foot lacquered inside and out fine crimson; bottom, black lacquer with three lines of Chin. chars. freely written in red, four chars. in each line, two upper ones broken. [The Chinese characters in the first and third columns read: 'Made by Chang Shan-fu of Wu-ch'ang in the *hsin-ssŭ* year.' The middle column contains two Mongolian names, *Li g'i*, followed by a signature in the form of a monogram.—Dr. L. Giles.]

Construction: round a central flat wooden disc are successive rings of flexible wood or cane with which curving rim is built up. Over this a coat of lacquer or paint; then a layer on back and front of open canvas made of a thin string warp and flat ribbon-like weft. Over this are successive layers of lacquer, the final being of the colour required, and well polished. About ⅜ of dish missing. Diam. 6", height of foot ⅜", total height 1". Pl. XI.

K.K. iv. 02, 03. Frs. of silk; discoloured; without pattern. *02*, tied in bow with one long end and one short, 6½" × ⅜". *03*, two strips with remains of sewing, 8" × 3".

K.K. viii. 02. a. Fr. of Persian MS., on buff paper, torn; [treating of the proper times for offering the various Moslem prayers, and especially the ten occasions (only seven occur on these pages) when the voluntary prayer or نماز تكبير should not be said. Probably of the early fourteenth century.—Mr. E. Edwards.] 6" × 7½". Pl. CXXXVII.

SPECIMENS OF VOTIVE MINIATURE STŪPAS FROM DIFFERENT RUINS, KHARA-KHOTO

K.K. 090–101. Twelve votive model clay Stūpas; specimens collected from different Stūpa ruins, also outside walls. 097–099 similar to *Ser.* iv. Pl. CXXXIX, So. A. 006. Plan: a square with a central projection on each side, brought out in three re-entering angles. Elevation: a tall square podium supporting a stilted tapering dome, the transition from square to circle being effected through a stepped octagonal drum.

Round podium, a projecting plinth brought out from upper part of podium in four steps. Base of plinth projecting in four steps. At centre of each face of Stūpa is a flight of steps, broad below and narrowing towards top of podium, to which it gives access. Steps occupy the central projections of plan. On crown of dome remains of square base of Tee.

The whole model stands on a rounded clay base, in one piece with it, and necessary for drawing model from mould in which it is cast. Below Stūpa a band of inscription in Brāhmī chars., and other chars. on top of dome. 099 badly broken.

090–096, 0100–101 are as *Ser.* iv. Pl. CXXXIX, So. A. 008. In place of the square podium is a conical base in four tiers of miniature Stūpas placed close together, the lowest tier having 31 Stūpas. Below this a band of Brāhmī inscr., and below again a continuous band of downward hanging lotus petals forming a Padmāsana.

0101 has chars. round Tee, well defined, the base of Tee itself rising in a square stepped pyramid.

Av. height 3", diam. at base 2¾"; 099, h. 4½", diam. at base 3¾".

OBJECTS EXCAVATED IN TEMPLE K.K. I. i

K.K. I. 01. Fr. of figured silk, with very fine warp and double weft of soft yarn. Pattern, floral. Colours; salmon pink, green, yellow, and blue. Ragged. Gr. M. 18".

K.K. I. 02. Tangle of buff silk thread, two-ply, twisted. Thickness *c.* $\frac{1}{16}$".

K.K. I. 03. Fr. of plain silk; soft, brittle; strong yellowish green; charred one end. Gr. M. 6½".

K.K. I. 04. Two frs. of plain silk, sewn together; both faded brick-colour, one fine close weave, the other coarser and loose. 5" × ⅜".

K.K. I. 05. Fr. of copper (?) wire ornament, part of pendant or ear-ring. Made of a pair of fine wires running parallel; general outline of orn. oval, the wires being coiled to form scalloped outline with spiral at point of each scallop. There are two series of this scallop, an outer and an inner, made of continuation of same pair of wires, and centre is filled with larger double spiral. Length 1¼", gr. width 1$\frac{1}{16}$".

K.K. I. 06. Fr. of faience, from architectural detail. A large vine leaf with stems and bracts in high relief, on a general curved surface. Red body, glazed fine green. Part of one end edge intact, otherwise broken at all sides. Rough back for 'keying' to cement. Good work. *c.* 12" × 12". Pl. LII.

K.K. I. 07. Fr. of faience, from architectural detail. Portion of large flat scroll-work in high relief; red body glazed brown and green. Parts of two adjacent edges intact. Other parts broken. Rough at back for 'keying' to cement. 11½" × 11¼". Pl. LII.

K.K. i. 08, 010. Clay stucco hands; two pairs, from small figures. *08* has backs showing, one hand over other; *010* has palms up, one in other. 2¼" × 1".

K.K. i. 09, 013, 020, 031, 032, 064, 066, 085, 096, 0112. Frs. of clay stucco snakes. Two heads and parts of bodies realistically curved and painted grey and buff with black spots. Originally attached to gilded stucco, as shown by frs. of gold adhering. Largest piece *c.* 10" across curve. Pl. LIII, LIV.

K.K. i. 011. Fr. of clay stucco, end of green drapery, bordered gold, in relief. 3¾" × 1¼".

K.K. i. 012, 0203. Frs. of clay stucco fingers, with long nails extending nearly ½" beyond finger-tip. Integument at root of nail conventionally emphasized; sides of nails deeply indented. Pose, straight and stiff; tips not recurved; gilded over white paint. No core. Life-size.

K.K. i. 014, 023, 039, 044, 045, 049–53, 061, 062, 065, 070, 0162, 0163–84, 0186–94, 0196, 0197, 0201, 0216, 0227–9. Frs. of clay stucco pearl cable orn., with rosettes and lozenge jewels attached. Gilded. Cable consists of four twisted strands of pearls with jewels applied to surface at intervals. For detailed description of jewels, see K.K. i. 028 &c. (lozenge) and K.K. i. 022 &c. (rosettes). For manner of application of jewels, see long pearl string on figure, *Ser.* iv. Pl. CXXXVIII, Mi. xviii. 009.

Construction:—on a core consisting of one or more rough wooden twigs, hard clay stucco, without fibre, is first applied. Over this, rough string is sometimes wound to form 'key', and on this the cable pattern is cast in slightly fibrous clay.

It is probable that cable formed part of jewellery of colossal figures, and similar ornaments are found in Gandhāra and Indian Buddhist sculpture. The frs. may sometimes have served as a border for haloes, &c. Total length *c.* 21'. Thickness *c.* 1½"–2". Av. length of frs. 7". Pl. LIV.

K.K. i. 015, 041, 081, 0108, 0132, 0133, 0144, 0145. Clay stucco colossal fingers. *015*, crooked, broken at second joint but held together by string core. 5¾" (chord) × 1½". *041*, two upper joints. *081*, slightly bent, broken in centre but held by string core. *0108*, two top joints slightly bent. *0132*, crooked. *0133* and *0144*, strongly crooked. *0145*, nearly straight.

In all, nail is trimmed below finger-tip, and integumental root of nail marked by prominent roll. All are fleshy, and upper joint recurved. Gilded over red paint. About twice life-size. Pl. LIV.

K.K. i. 016, 026. Fr. of clay stucco drapery (?) in two pieces; painted red, with incised shape (lining?) green. Traces of gilding over red. 3" × 6".

K.K. i. 017, 019, 024, 074. Frs. of clay stucco orn., convex band ornament in low relief, gilded. Scroll ornament between narrow plain bands, outside which pearls. Gr. fr. 5" × 2".

K.K. i. 018. Clay stucco orn. Flaming jewel, gilt. 3" × 3".

K.K. i. 021. Fr. of clay stucco drapery, showing folded ends, gilded. 2½" × 1¼".

K.K. i. 022, 0202. Clay stucco rosettes. High centre, plain jewel surrounded by pearls; outer ray, six blunt-ended petals, then plain band edged by pearls. Gilded over red paint.

0202 attached to fr. of stucco painted pink. This rosette is finely burnished, has eight pointed petals and no outer ring of pearls. *022*, diam. 2¾". *0202*, diam. 2¼".

K.K. i. 025. Fr. of clay stucco, from edge of drapery painted white, gold edge, green lining; traces of red at lower edge. 7" × 2¾".

K.K. i. 027, 080, 0102, 0122, 0123, 0131. Frs. of stucco ornaments, of pyramidal form, consisting of two heart-shaped jewels placed one above the other, the lower larger than the upper, resting upon a row of six pearls. R. and L. of this central feature are symmetrical branching scrolls which fill side spaces of triangle and extend above upper heart. No specimen complete, some being cut to fit adjoining work. *080*, *0123*, very fibrous and flexible. Gilded. Well burnished, other frs. much abraded. Pl. LIII.

K.K. i. 028, 078, 079, 0187. Clay stucco lozenge-shaped jewels; from pearl rope. In centre, flat rectangle surrounded by raised pearls, a flattened heart-shaped jewel, point outwards at each of the four sides, and at point of each heart a cabochon. Scrolls spring from each corner of centre rectangle and divide, curving R. and L., connecting the jewelled arms and forming the lozenge shape. *028*, *079*, slightly convex with impression of pearl cable rope at back. Length 5¾" × 3½". *078*, flat with no impression at back; one end broken. 4½" × 3". *0187*, strongly convex, with cable impression; one side cut away in clean curve. 5¼" × 2¾". Pl. LIV.

K.K. i. 029, 056, 090, 0115, 0119, 0141, 0199, 0205, 0206, 0222. Frs. of clay stucco pearl straps, with plain edges and peony rosette ends; from pendent tabs hanging from carcanet of figure, as in *Ser.* iv. Pl. CXXXVIII, Mi. xviii. 009. *029* and *090* join, and have portion of breast of figure attached. For other example, see K.K. i. 037. Gilded. Gr. fr. 6½" × 1¾". Pl. LIII.

K.K. i. 030, 0140. Frs. of clay stucco from band; consisting of row of pearls with two plain bands to one side; convex as for armlet; gilded. Cf. K.K. i. 0107. 4½" × ¾".

K.K. i. 031, 032, 064, 066. Frs. of clay stucco snakes; grey spotted black. *031*, 6¾" × 1". *032*, 7½" × 1¼". *064*, two entwined, 4" × 1¼". *066*, 5½" × 1½".

K.K. i. 033. Fr. of clay stucco drapery, pink, tied with blue band at lower end and flowing in slight outward curve downward, exposing blue lining edged with gilding. Prob. the long open sleeve (a kind of 'poky') as seen in the figure in *Ser.* iv. Pl. CXXVII, Mi. xv. 0031. 20" × 6" × 6".

K.K. I. 034. Clay stucco head-dress. Flat mitre-shaped frame within which swags of hair loosely plaited, the outside bordered with hanging locks recurved at ends. Remains of red and yellow paint on frame; hair black. A wooden core, sharpened at end, inserted below. 8½" × 7¾". Pl. LIV.

K.K. I. 035. Fr. of clay stucco drapery, green, lined red with gilded edge. 7" × 7".

K.K. I. 036. Fr. of clay stucco head, of demon (?). L. eye round and bulging, with pink ball and black iris; eyebrow projecting, black; hair black, with horn-like roll beside face. All other parts missing. 6" × 3½". Badly perished.

K.K. I. 037, 038, 058. Curved fr. of painted clay stucco, convex; *037, 058*, with black markings to simulate tiger skin. Remains of two pendent bands with pearl ornament in relief. Much defaced. Part of breast of figure clad in skin. *Cf. Ser.* iv. Pl. CXXXVIII, Mi. xviii. 009.

Behind and formerly attached to above, *038*, of same form, painted red. Evidently an earlier piece of work restored by a fresh layer of stucco differently painted. 10" × 6¼".

K.K. I. 040, 054, 091, 0105, 0106, 0157, 0204, 0217, 0218. Frs. of clay stucco hair. Long, slightly waved locks, voluted at ends. Texture represented by shallow formal channels, similar in character to that shown in 'mitre' frame, K.K. I. 034. Painted grey or black over blue. Occasional traces of gilding at sides. Gr. fr. 5¾" × 2¾". Pl. LIV.

K.K. I. 042. Turned wood finial, or Stūpa with elaborate mouldings, the upper part having Persepolitan dome (?) with raised rib round it. Above this a narrow neck, swelling out again in stepped flats (Tee ?). Below dome a pair of rounded mouldings curving upward and downward from their line of junction (Padmāsana). Below this a base cut with broad and narrow flat mouldings. 4¾" × 2". Pl. LXVI.

K.K. I. 043. Fr. of leg of wooden stool (?) or similar object. Generally square (or rectangular) in section and may be considered as composed of three members. First, at upper (?) end a rectangular block 2¼" high × 1¾" × 1⅝", the front face being one of the large sides. In this is cut a vertical mortice ½" wide and $\frac{5}{16}$" deep, extending whole height.

Below first, second member resembles square capital, 1¾" wide, 1⅝" front to back, and 1¼" high. This has plain abacus ⅜" high, and below is cut away in cyma curve on three sides; the angles of adjoining cymas chamfered.

This rests on the third member, a base, square and chamfered outwards to form block of approx. same size as abacus, the outward curving angles being also chamfered. The whole of the back of object is flat and in one plane. Remains of broken tenon at each end. Length over all 6¼".

K.K. I. 046. Fr. of clay stucco colossal foot, with remains of gilding. Hollow below and very fibrous. Width across toes 6¾", length 5½". Perished.

K.K. I. 047, 048. Frs. of clay stucco lotus petals, ornamented with flamboyant scroll-work in relief at point, proceeding from raised rib running parallel to edge. Hollow and fibrous. *047*, painted red. 6¼" × 5". *048*, red with green edge. 8¾" × 8". Pl. LV.

K.K. I. 055. Fr. of fresco in grisaille on dark green or black ground; floral scroll pattern. Badly broken. 7" × 5".

K.K. I. 057, 059, 060. Frs. of gilded stucco of irreg. shape; the last with projecting ball attached to surface. Largest, 5" × 2¾".

K.K. I. 063, 077, 084, 0161, 0185. Clay stucco rosettes, painted and gilded, from pearl rope K.K. I. 014 &c., and pearl string K.K. I. 092 &c. In centre, plain circular jewel in plain band bezel surrounded by row of pearls. Outer ray of seven flattened heart-shaped jewels point outwards, in plain raised settings. *063, 0185*, broken. Diam. 2¾", 2¾", 3".

K.K. I. 067. Fr. of clay stucco; convex surface, from breast of figure; part gilded and part red stucco; a band of pearl ornament at edge of gilded portion and adjoining red. Scar of second band (missing). 6¾" × 4¾".

K.K. I. 068. Back of clay stucco figure of Ho-shang, prob. belonging to K.K. I. 0142 (Pl. XLIX). Head appears to be bald, and neck is in rolls of fat. Behind L. elbow is his sack (?). Material similar to that of 0142. The two halves do not now fit together owing to their having become rather misshapen. Very fibrous. 5½" × 5½".

K.K. I. 069. Fr. of clay stucco demon head; R. eye and brow. Eye bulging, red and white with empty iris socket; brow overhanging and streaked with black lines. Boldly modelled. 5¼" × 4". Pl. LIV.

K.K. I. 071. Fr. of clay stucco, representing three flattened sides; gilded. 3¾" × 3".

K.K. I. 072, 086. Frs. of clay stucco band, with pearl edge. Colour perished. 4¼" × 1¾", 9¼" × 1¾".

K.K. I. 073, 0129, 0130, 0207. Frs. of clay stucco tiara (?), gilded; consisting of a pearl cincture with two plain bands above, supporting a row of palmette orns. (as 'strawberry leaves' in coronet); each consists of two voluted curves springing R. and L. from short pearl band, and supporting trefoil flower which issues from between. The whole convex. Gr. fr. (*073*) 6¾" × 2¼". Pl. LIII.

K.K. I. 075, 0126, 0160. Frs. of clay stucco 'caltrop' mail, gilded. *075*, well modelled but badly preserved. 4¾" × 3¼". *0126*, concave and roughly modelled. 7" × 4". *0160*, single link well modelled. 1⅞" × (projection) ⅝". For detailed description, see K.K. II. 0163 and 0197, Pl. LV.

K.K. I. 076. Clay stucco forearm; upraised and elbow bent, from life-size figure painted pink with gilded pearl bangle at wrist. Hand missing. Length 11¾".

K.K. I. 083. Fr. of clay stucco boat-shaped object, resembling a classic lamp, with hole in upper side; but upper surface is treated with radiating lines faintly suggesting drapery. Under-side smooth. Painted red. 5¼"×2¼"×2".

K.K. I. 087. Clay stucco rosette of five petals, from scroll band, impression of which is at back. Gilded. Diam. 1⅝".

K.K. I. 088. Clay stucco cord tied in loop; blue. 3"×2¼".

K.K. I. 089. Fr. of clay stucco drapery, painted and gilded. 2"×1½".

K.K. I. 092–5, 0163, 0208–15, 0221. Frs. of clay stucco, large pearl string; gilded. Probably from figure. Cf. *Ser.* iv. Pl. CXXXVIII, Mi. xviii. 009. Total length *c.* 3' 5", width ⅝".

K.K. I. 097–9, 0110, 0111, 0134, 0135. Frs. of clay stucco, gilded, prob. parts of body of figure. Largest 6"×3½".

K.K. I. 0100. Fr. of clay stucco ear-lobe (?), pierced. Gilded. 2¾"×1⅞".

K.K. I. 0103. Fr. of carved wooden jewel, painted and gilded. An elliptical rosette from which issued scrolls R. and L.; from this depends a string of pearls holding inverted palmette, above which an upward curving band of pearls R. and L. Roughly carved. 2¾"×1½". Pl. LIII.

K.K. I. 0104, 0116–18, 0136, 0137, 0139. Frs. of clay stucco pendant, gilded, similar to K.K. I. 029 &c., but curved towards lower end where it broadens out, the double band edges throwing out scrolls. Probably hung from carcanet. R. and L. of centre straight pendants, as in K.K. I. 037. Gr. fr. 4½"×2¼". Pl. LIII.

K.K. I. 0107. Fr. of clay stucco armlet, on arm, gilded over red (arm) and yellow. Pattern, triple band, one outer of pearls, with five-petalled rosette attached at plain edge. 2¾"×3".

K.K. I. 0109, 0219–20. Clay stucco colossal toes, painted red, with remains of gilding on nails. 0220 strongly flexed. Character of nails similar to that of fingers, for which see K.K. I. 015, &c. About twice life-size. Pl. LIV.

K.K. I. 0113. Fr. of clay stucco curved band with raised edges; red. 2¾"×1¼".

K.K. I. 0114. Fr. of clay stucco hair, painted red. 1¾"×1¼".

K.K. I. 0120, 0138. Frs. of clay stucco tongues of flame (?). *0120*, red. 4"×¾". *0138*, crimson and grey with gold on sides. 2½"×¾".

K.K. I. 0121. Clay stucco horse, with empty saddle of usual Eastern type—high pommel, short flaps, long saddle-cloth, large stirrups. On back of neck a long elliptical covering of overlapping longitudinal strips (armour ?). Moderately well modelled on wooden core. Much broken. Legs, ears and tail missing. 15"×9". Pl. LV.

K.K. I. 0124, 0125, 0127, 0143. Frs. of clay stucco drapery. *0124*, knot of red drapery with gilded edges. Lower edge shows symmetrically arranged ends of spreading flattened tubular folds; upper is bound round with four cinctures. 6"×5¼". *0127* similar to 0125. Cinctures only of similar knot to above. *0143* similar to 0124 but without cinctures. Perhaps belongs to 0125. Well preserved.

K.K. I. 0128. Fr. of clay stucco head-dress; mitre-shaped frame as in K.K. I. 034 but on smaller scale. Frame bordered with red pearls. Locks of hair twisted cablewise; blue-black. 3⅝"×3½". Pl. LIV.

K.K. I. 0142. Front of stucco figure of Ho-shang, in loose robe thrown back exhibiting his exuberant proportions. Fig. half reclines, resting with L. arm upon his sack, R. hand holds side of his huge round paunch, above which the pectorals are sharply and amply defined. Face fat, humorous and laughing, mouth open and toothless. Lower part of figure missing.

An excellent piece of modelling, cast hollow, and of very fibrous clay. Traces of colour. Surface badly perished and the whole very soft and flexible. For back, see K.K. I. 068. 7"×3⅝". Pl. XLIX.

K.K. I. 0146–50. Clay stucco rosettes. 0146, peony in profile. *0147*, whorl of 8 trefoil petals in plan, surrounded by whirling petals in profile; flask-shape pistil in profile. *0148*, elliptical jewel surrounded by small and large pearls. *0149*, lotus. *0150*, elliptical marigold centre surrounded by four palmettes of flat volutes enclosing radiating petals. All well modelled and gilded. Av. diam. 1⅜". Pl. LIII.

K.K. I. 0151–6. Clay stucco pyramidal spirals of hair, detached from head of Buddha figure. Blue. Av. ⅞"×⅞".

K.K. I. 0158, 0159. Clay stucco miniature Stūpas. Dome rises on four-tiered octagonal base. In front of each side of base is miniature Stūpa in low relief. Below octagon a circular podium surrounded by pearls. Surface much abraded. 1⅞"×1¼".

K.K. I. 0195. Clay stucco mask of Buddha head, much discoloured. Broad and unusually high flat forehead, narrow chin, small features, eyes closed and oblique. Ūrṇā and Uṣṇīṣa; red jewel in front of blue hair; this is composed of small round knobs slightly festooning across brow and dropping down symmetrically above ears, which are missing. Very fibrous clay, gilded, and retaining inside impression of canvas. 4"×3"×1¼". Pl. LIII.

K.K. I. 0196. Fr. of clay stucco palmette orn., gilded, prob. from pendant, as K.K. I. 0104 &c. 1⅞"×1¼".

K.K. I. 0198. Fr. of clay stucco, showing root end of bunch of stems modelled in the round, very fibrous and flexible. Painted green and white (?). 2¼"×2½"×⅞".

K.K. I. 0200. Fr. of fresco, showing face of lion (?) in black outline on white ground. Red eyeballs and lips, with white spots in eye and mouth (tooth ?). Very fragile. ⅞"×⅞".

K.K. I. 0223-4. Frs. of clay stucco, plain channelled bands; convex. *0223* gilded over red paint, *0224* has remains of bright blue paint over red. Length of each 2", widths ¾" and 1⅝".

K.K. I. 0225. Votive clay model Stūpa. Very perfect example, in large size, of type K.K. 098, and *Ser.* iv, Pl. CXXXIX, So. A. 006. High base. Inscr., faintly visible, does not run round outside, but in broken groups of chars. on ground between projecting angles of walls. H. 4⅜", gr. diam. 4". Pl. LIII.

K.K. I. 0226. Stucco relief fr. (broken in two). Flat channelled band of hair or drapery, almost straight, showing remains of red paint. 3⅛" × 1⅛".

K.K. I. i. 01, 02, 012, 013. Pottery antefixae of Chinese type. *01*, semi-tubular with outer end closed by circular patera decorated with a finely designed Gorgon head in relief. Semi-tubular portion broken away at tail end and one side. *02*, *012*, *013*, end paterae only (*02* incomplete), semi-tubular tails being broken off. Grey ware burnt hard. For application of such roofing ornaments, see Chavannes, *Mission archéol.*, Fig. 1084, Pl. CCCCLXII. Length 9½", diam. of paterae 4½". Pl. L.

K.K. I. i. 03. Faïence hollow finial (?), wedge-shaped in both directions; lower end abruptly narrowed by check on each side, upper end pointed in broad arrow shape.

Raised flat margin and midrib reserved, following deep incisions on each face which divide it into two triangular panels. Side faces smooth; top open. Dark green glaze over red clay. Broken at one top corner. Height 11", width complete *c.* 7¼", depth at widest 3¼". Depth at narrow end 2¼"; width at narrow end 2¾". Pl. LII.

K.K. I. i. 04. Fr. of pottery spout in form of snake's or elongated lion's head; red clay, badly glazed green with dark green contour markings, and yellow inside. Broken at mouth. Inferior pottery. 2¼" × 1¼".

K.K. I. i. 05. Wooden capital (?), rectangular; upper half (abacus) squared, lower half chamfered hollow to bottom face, which measures 4¾" × 3¼". In bottom face is roughly cut square hole, 1½" diam. × 1¼" deep, to take tenon of post. A square-cut channel, 3¼" wide × 1¼" deep, is cut right across narrow way of top surface to take horizontal rail or architrave.

Abacus is cut away on one side to a depth of 3¾" from one long face and 1¾" from short face, and is rounded as though for fitting to round member.

Top and bottom surfaces unpainted. All the remainder dull grey-green with all edges picked out in yellow. Smears of red round channel in upper surface from careless painting of rail in that colour. Similarly, traces of red on lower surface.

Considered the reverse way up it would be a base. Probably from wooden railing. For similar blocks in miniature, see Ast. iii. 4. 024-026. Gr. length 9" × 6¼" × 5".

K.K. I. i. 06. Fr. of glazed faïence, flat; body red; glaze on face bright green. In relief on face, curving oak leaf. For finer examples, see K.K. I. 06, 07. 7" × 5½" × 1¼" to 1¾". Pl. LII.

K.K. I. i. 07. Fr. of glazed faïence; small curling leaf in profile, appliqué over straight stem which passes below it at right angles. Same clay and glaze as preceding. 5" × (gr. width) 3¾" × 1¼". Pl. LII.

K.K. I. i. 08. Fr. of glazed faïence; same clay and glaze as preceding. Convex acanthus leaf or bract, showing signs of recurving again at (broken) top and bottom. Sides also partially broken; but complete in middle, giving width of 4", though evidently expanding above and below. Fr. is from central portion, masking junction of R. and L. floral scrolls, beginnings of which are present. Back concave to follow convexity of front. 6" × (gr. width extant) 5" × (average thickness) ¾".

K.K. I. i. 09. Fr. of glazed faïence; similar to preceding. In shape a curving fan-shaped leaf (?), with deeply hollowed veins following line of curve. Base end only preserved. 7¼" × 5½" × 1¼". Pl. LII.

K.K. I. i. 010-11. Two frs. of glazed faïence, similar to the preceding. Curved hollow frs., like side of snail-shell but having hole in flattened top. Double groove follows edge of hole, and side is roughly fluted. Gr. fr. (*011*) 6" × 4¾" × (h.) 2¼". Pl. LII.

K.K. I. i. 014. Pottery head of monster, apparently architectural. Probably gable end. Grey clay, unglazed. Incomplete.

Spirited modelling, with large ball-like eyes set under overhanging wrinkled eyelids; open mouth showing upper teeth (lower jaw lost), and long tapir-like upper lip drawn up in angry snarl. Large horizontal holes for nostrils are bored at base of upper lip with slight prominence on top between. Surface lightly scraped to suggest hair; three deep grooves drawn across base of snout to indicate wrinkles caused by lifting of lip; lip itself scored inside with cross-lines to indicate ribbed formation of roof; upper lip finished at corner of mouth in spiral. The iris of eye is surrounded by a deep groove, which has the effect of directing the gaze forward and downward.

Top and back of head are cut off flat; the former having two large holes sunk vertically directly over each eyebrow, for connexion with points of adjoining piece, and the back hollowed out in concave curve from side to side, attaining depth of 1¼". At bottom, also, a hole is pierced through back of throat for fixing pin.

Ears or horns not developed owing to flat finish of head. Remains of dark pinkish slip over surface. Details vigorously, not punctiliously, treated. Length 8", h. (at back) 5", width (at back) 6". Pl. L.

K.K. I. i. 015. Fr. of pottery finial. Low triangular shape, with slightly arched base, and scalloped edges to upper sides. Plant design in relief on face, with central upright stem and buds in profile in corners. Long narrow straight-edged leaves. Sand-encrusted; lower corners broken off. 4" × 6¾" × (thickness at bottom) ¾". Pl. L.

K.K. I. i. 016. Fr. of glazed faience; similar clay and glaze to K.K. I. i. 06 &c., showing fr. of foliage in relief, with curled leaf like K.K. I. i. 07 (Pl. LII). Glaze partially gone. Fr. chamfered inwards at back to form wide V-shaped depression. 5" × 5¼" × 2¼" to 3".

K.K. I. i. 017. Stucco human hand, grasping small object such as spear shaft (missing). Modelling extremely good, and but for the size might have been cast from life. Painted dark red. Two wooden pegs at wrist for attachment. ⅔ life-size. Pl. LIII.

K.K. I. i. b. 01. Mass of frs. of painted silk, from which is made out an imperfect rendering of the Moon. On white disc with red-brown border line a tree with a hare standing on its hind legs holding a churning stick, in black outline. Surrounding the disc a series of radiating pear-shaped white patches (prob. eight) outlined roughly with red brown. Diam. of disc 4½". Other frs. show white scalloped circles, outlined black. Pl. LXI.

K.K. I. i. b. 02. Frs. of painted silk, among which the lower L. p. angle of face, with red lips; the upper R. p. angle of face with part of eyebrow and outer angle of eye; a R. shoulder. All white, outlined black. Rough work. ⅔ life-size.

K.K. I. i. b. 03. Frs. of painted silk banner. On L. p., head and shoulders of celestial figure, head ¾ to R. p. bent slightly down; dark complexion.

Head-dress has tall centre Liṅga-shaped black mass bound round with a ribbon. Round this are set tall white or pink lotus buds. A red band encircles head and hangs in loop at back. Elongated nimbus (green) and green halo.

To R. p. a second figure, front, costumed as Bodhisattvas in Th. B. banners with many ribbons, stoles and girdles. Head-dress prob. flaming jewels held by red band. At top one or two floating Apsaras on clouds. The whole is very faded and torn. Outline in black, very delicately drawn. To R. p., a red border. 7½" × 6".

K.K. I. i. b. 04. Fr. of painted silk banner, with patches of colour. Design indistinguishable. 3½" × 2⅝".

K.K. I. i. b. 05. Fr. of painted silk; showing man's face in many frs. Flesh white, lips red. Eyes long and straight, upper and lower lips each drawn with single line; eyebrows well arched and thick. Hair (or cap) solid black; moustache and beard painted with rather dragging stroke. Life-size.

Outlines black, boldly drawn. Very good character of work, expressive and free. Top of head, extreme L. side of face and R. corner missing. Background to R. p., plain. 5" × 7". Pl. CVII.

OBJECTS EXCAVATED IN CENTRAL CHAPEL OF SHRINE K.K. I. ii AND AMONG REMAINS OF OTHER SHRINES WITHIN TOWN, K.K. I

K.K. I. ii. 01. Fr. of thin canvas painting, apparently part of border, containing seated Buddha fig. Soles of feet upturned; hands in teaching attitude; head ¾ to L. p., slightly downwards. Ear large; hair black and short; nose long; mouth smiling. Flesh pink; contours black over darker pink. R. arm seems to be shaded. On upper R. arm an armlet. A stalk with flowers seems to proceed from L. arm. Rosary round neck.

Three garments; under, light (perhaps white); robe vermilion; stole yellow outlined grey. Horseshoe halo vermilion with green centre; nimbus green, shaded light near head. Spandrels green, with vermilion flowers. Narrow line of yellow across above nimbus, and above, a border, ⅜", vermilion.

Below, a straight and continuous Padmāsana, shaded. The whole rather Tibetan in style. Canvas carefully primed, and paint mixed with water.

Rev. primed grey, probably mixed with wax or oil; a few well-written Tib. characters in vermilion. Edges cut.

With above a small fr. of paper with part of ornament drawn in black outline. Canvas, torn, but otherwise well preserved. Paper rather woolly. Canvas 3$\frac{9}{16}$" × 2$\frac{5}{16}$". Paper 1$\frac{3}{16}$" × $\frac{15}{16}$". Pl. LXXVII.

K.K. I. ii. 02. bb. Block-printed paper leaf with Hsi-hsia text and decorated along top and across centre with rows of twelve seated Buddha figures similar to K.K. II. 0257. f, g. Coarsely printed. Leaf originally folded down centre. Paper buff, strong and torn at centre of top. 8½" × 7¾".

K.K. I. ii. 02. dd. Fr. of paper, with block impression of part of head-dress (?). 1½" × 1¾".

K.K. I. iii. 01, 02, 03. Clay stucco; lotus petals, prob. from Padmāsana. *01*, painted pink darkening to centre, and having white inner and yellow outer border. 4½" × (gr. width) 2¾".

02, Similar but blue instead of pink. 3½" × 1¾". *03*. Two petals in one piece, a smaller superimposed on larger, their bases together. Tip of larger rather strongly tilted outwards and the smaller less so. Painted pink. 2$\frac{7}{16}$" × 1½". Pl. LV.

K.K. I. iii. 04. Fr. of clay stucco antler (?). Main stem bending backwards (broken off); a short blunt tine pointing forwards. Stick projecting from root for attaching to head of deer. Painted over all white with black markings, and green smear on under-side. Gr. M. 1½" × 1¼".

K.K. I. x. 01–5. Clay stucco lotus petals, coloured variously red with green border, green with red border and blue with red border.

Between border and centre a raised rib running all round curved edge turning into symmetrical flame scroll at centre and coloured yellow. Point of petal slightly upturned. Av. 4¼" × 3¾", excepting 03, 3½" × 3¼". Pl. LV.

K.K. I. x. 06, 07. Clay stucco rosettes in low relief; gilded. Eight blunt petals with inner ring of pearls and plain centre. Diam. 1¼".

MISCELLANEOUS OBJECTS RECOVERED AT RUINED SHRINE K.K. II.

K.K. II. 01. Carved wooden figure of standing Buddha in Abhaya-mudrā. Head and both hands missing; feet together slightly out-turned and resting on green lotus.

Three garments are visible. An upper robe, red, is wrapped round body, over L. shoulder and arm, hanging in straight line down L. side of leg nearly to ankle; at this level it shows a horizontal edge round back, and an oblique line in front upwards from R. to L., the line of upper edge crossing breast being parallel. The upper line at back runs from L. shoulder downward to below R. arm. A corner of same robe hangs from forearm to back of L. thigh.

A second robe, green, covers breast and back to neck and R. arm, and hangs in heavy loop from arm to near ankle. Covering lower legs and ankles is third robe, purple, heavily pleated and reaching to lotus at back. On this, in front are two white pendent bands, ends of girdle. Round neck hangs massive carcanet, gold, studded with rosette jewels. Folds in drapery very few and formal, being merely grooves.

At each shoulder is stump of an upward projection, red, which may have supported nimbus. Neck and feet gilded. Seen from side, figure is too flat, but the backward curve from feet to shoulders conveys great dignity. From front the resemblance to twelfth-cent. Gothic statuary is most striking.

Lotus chipped; corner of red robe, burnt; crack down front. Height 10¼″, width 2⅞″; thickness front to back *c.* 1¼″. Pl. LXVI.

K.K. II. 02, 04–7, 012, 017. a–b, 021, 023, 025–7, 031, 038–40, 046–9, 051, 070–3, 079. Frs. of plain silk.

02. Blue with piece of yellow attached, 13½″ × 7½″. *04.* Dark brown, 9″ × 4½″. *05.* Faded pale blue, 10″ × 4″. *06.* Grey-brown, 5¼″ × 4″. *07.* Buff, with traces of paint or paste, 4½″ × 3¾″. *012.* Buff, 7″ × 3½″. *017. a.* Dull green, 8″ × 4″. *017. b.* Rich canary yellow, 6″ × 1½″. *021.* Blue, 11½″ × 1½″. *023.* Bright green, fine corded surface, 12″ × ⅞″. *025.* Two frs. blue, to larger is attached doubled strip buff, 13″ × 15½″ and 9½″ × 9″. *026.* Two frs. buff, stained pink in patches, 14″ × 15″ and 10″ × 2″. *027.* Two frs. plum colour, 13¾″ × 9½″ and 9″ × 2½″. *031.* Pale faded blue, 12″ × 8″. *038.* Three frs. dark blue. Largest 7½″ × 6″. *039.* Two frs., faded blue, 7″ × 3½″ and 7″ × 1½″. *040.* Blue, loosely woven with tiny fr. of inscr. paper attached, 14½″ × 14″. *046.* Dark blue, 10½″ × 15″. *047.* Two frs. black, 21″ × 5″ and 11″ × 5″. *048.* Faded blue or green, 10″ × 6″. *049.* Buff, unevenly woven, 14″ × 4½″. *051.* Faded yellow, 12¼″ × 8½″. *070–2.* Blue with remains of coloured and MS. paper adhering. Gr. fr. 13″ × 14″. *073.* Dark drab, 11″ × 9″. *079.* Black, 6½″ × 2½″.

K.K. II. 08. Fr. of painted silk, canvas; with group of seven celestial beings kneeling on cloud scrolls with which they are surrounded. Head-dresses all of tall Chinese type, excepting one, with crown. Features Chinese.

All are enveloped in voluminous robes of one colour. The lowest (complete) dark grey; to L. p. one red; to R. p. one yellow, one red. Higher to R. p., red, with gilded head-dress; highest, blue. Each figure nimbate and placed one behind the other *en échelon*. Drawing delicate and free. Well preserved. 4½″ × 2½″.

K.K. II. 09. Fr. of silk, canary yellow, faded, with six bold Chinese characters in black ink. 15″ × 11½″.

K.K. II. 010. Fr. of painted silk gauze, yellow, with white lotuses and green leaves and stalks. Touches of red brown here and there. Flowers well drawn. 3½″ × 3½″.

K.K. II. 011. Fr. of painted silk banner. Part of R. side near top. A very graceful Apsaras floats vertically with head bent downward towards central figure, of which flaming halo with elaborately drawn cusped centre appears below tasselled canopy. Apsaras has loose short-sleeved vest, open in V shape to waist, falling in graceful folds over hips and dropping in point at front.

In extended L. hand a small dish of fruit and in uplifted R. hand a flower. A pink clinging robe ornamented with spiral spots, and with green lining, reveals bare feet; in front the long ends of girdle are knotted at about knee level. A massive carcanet encircles neck.

Outlines freely drawn in black. Very faded and ragged. 15″ × 10″.

K.K. II. 014. Frs. of painted paper, several thicknesses stuck together and painted in red, blue, yellow, &c., but too fragmentary to make out. Very fragile. Largest 5″ × 2½″.

K.K. II. 015. Fr. of silk damask, discoloured. Pattern loosely woven and indistinct, but rows of Svastikas can be recognized. A few Chinese characters written in black. 7″ × 4″.

K.K. II. 016. Fr. of printed silk, dull pink with four-petalled buttercup rosette *semé* in white (resist). Very ragged. 13″ × 13″. Pl. LXXXVI.

K.K. II. 018. Figured silk wallet; square when open, with edges turned in and pasted to paper lining. Two bands, composed of circular or elliptical bunches of flowers in blue and yellow, are woven across material; the space between bands *c.* 3″. Diam. of bunch 2″. Space between bunches ⅞″.

The coloured yarns float loosely at back, and have been strengthened by paper pasted over. Ground colour of material probably pink discoloured to dull brown. In centre of one edge of square a band of some material for tying, 9″ long. Very discoloured and faded. 7½″ × 8″. Pl. LXXXIII.

K.K. II. 019. Fr. of printed silk, buff with lighter 'resist' pattern of rosettes of four long petals, all-over. Roughly printed. 5″ × 1½″.

K.K. II. 020. Fr. of printed paper, showing repeating seated Buddha figure in meditation, similar to K.K. II. 056, but different block. 2½″ × 1½″.

K.K. II. 022. Frs. of paper, perished, with traces of Chinese characters. Largest *c.* 3" × 3".

K.K. II. 024. Silk banner top, triangular, crimson with round white spots by resist process. Edges bound with buff gauze, with top loop for suspension and short tasselled ends of same. At lower corners blue (faded to green) tubular gauze streamers with terminal yellow and blue tassels. A Chinese numeral (?) in black ink near point. 12" × 6".

K.K. II. 028. Fr. of paper, with Chinese characters. Very rotten. Gr. fr. 3" × 1½".

K.K. II. 029. Frs. of paper, soft and woolly, with block-printed Chinese characters. Gr. fr. 2½" × 1¾".

K.K. II. 030. Fr. of silk damask, with small lozenge trellis all over. Pale blue faded to buff. 8" × 10½".

K.K. II. 032. Fr. of printed silk, crimson spotted with six-petalled buff rosette in resist, showing centre circle and midribs to petals reserved in ground colour. 11" × 5". Pl. LXXXVI.

K.K. II. 033. Fr. of printed silk: blue printed white by resist. Spot pattern of symbols. 12" × 4". Pl. LXXXVII.

K.K. II. 034. Frs. of printed silk, thin and loosely woven. Dull crimson, dyed with pattern reserved buff by resist. Large piece spotted with rosettes composed of large centre dot surrounded by ring of 10 small dots. Rosette frequently distorted as though stamp was only half a circle stamped twice to form the circle, and often overlapping so that a kind of ellipse is formed.

Small piece spotted with five-petalled rosette. The two pieces sewn together. 12" × 4". Pl. LXXXVI.

K.K. II. 035. Fr. of canvas painting. R. arm, and outline of hip and leg of figure. Background blue, bordered gold (metallic); probably vesica, with crimson background above upper curve of vesica. Short tight-sleeved tunic with band above elbow and cuff of vandyked ornament. Arm pendent with two bangles at wrist; hand defaced. Drapery at hip. Traces of black (hair) at shoulder. Outline black; very faded and worn. Pose of R. leg suggests advancing R. to L. 12" × 2".

K.K. II. 036. Fr. of silk tapestry, composed of several pieces sewn together. Very ragged but fine work. Floral pattern too fragmentary to make out. Ground dark brown, pattern in shades of green and buff. Encrusted with mud. *c.* 4" × 6".

K.K. II. 037. Fr. of silk damask. Pattern very indistinct; small floral sprig, *semé*. 5" × 3½".

K.K. II. 041. Silk threads of blue and yellow, twisted together and made into a hank 19" long.

K.K. II. 042. Frs. of paper, stuck together like cardboard. Gr. fr. 1½" × 1$\frac{3}{16}$".

K.K. II. 043. Silk wallet (?), in two frs. faded green; lined with several thicknesses of MS. paper, similar to K.K. II. 018 (Pl. LXXXIII), but without string. 10½" × 6¾".

K.K. II. 044. Frs. of canvas, blue and buff, stuck together with paper bearing Chinese characters, used as stiffener. Shapeless and ragged. 11" × 10".

K.K. II. 045. Fr. of silk banner. Upper border of stout ribbed blue silk, doubled with frs. of edge of painted fabric adhering to stitching at lower edge. Portion of cane stiffener in fold, and two silk suspension loops; through these are put two short pieces of cane, of which one is portion of arrow butt. 2' 6" × 4".

K.K. II. 050. Fr. of silk damask, very firm, pink, with bold floral design. A few cursive Chinese characters in black ink on one side. 5" × 2½".

K.K. II. 052. Fr. of silk. Long strip, thin, pink, with bold Chinese writing on both sides. 24" × 4½".

K.K. II. 053. Fr. of silk damask, lined plain silk. On damask, traces of Chinese characters apparently written on a painted surface put on the damask. Very worn and pattern unrecognizable; all discoloured. 8" × 10½".

K.K. II. 054. Frs. of printed silk; several pieces joined; one piece plain. Two with spot pattern in black outline—two concentric circles from which six short rays with small rhomboids between; making a kind of wheel design $\frac{7}{16}$" in diameter. Another piece dotted with stars and birds, and having a few Chinese characters either written or stamped. 19" × 10".

K.K. II. 055. Fr. of painted silk canvas; torn, very faded and nothing of interest; patches of red and other colours. *c.* 12" × 3".

K.K. II. 056. Fr. of block-printed paper. At top a row of four seated Buddha figures in teaching pose with lotus petal halo and nimbus. Below, four rows of 5 Chinese characters. Then four more figures in meditation, under each of which five more Chinese characters. To L. six Chinese characters (probably more missing at upper torn corner). Below these a small Pagoda. A line across bottom. Torn away at lower R. corner. 11½" × 5".

K.K. II. 064. Fr. of paper, with a few black lines and traces of green and red colour. 3½" × 2".

K.K. II. 065. Fr. of drawing on paper, showing rough sketches of head of stringed instrument, a flower and upper part of shoulder, face and head of figure. Thin lines. 4½" × 5½".

K.K. II. 066. Fr. of painted canvas banner. Part of face and R. shoulder of Buddha. Flesh colour, shaded. Eyes oblique. Short black hair in bow-shaped curve over forehead with red spot in front. Cf. plaster mask K.K. I. 0195 (Pl. LIII). Long ear.

Petal-shaped nimbus, buff, halo green with red border. Background green with black line scroll-work; red outer border; outlines black. Poor work of Tibetan type. 10½" × 11½".

K.K. II. 067. Fr. of silk appliqué band; made of narrow strip of fine dragon design work in gilded silk canvas

mounted on thin paper and applied to crimson or salmon pink corded ground; outlined with silk cord which is covered with gilded paper and couched.

One edge is plain band of gilded silk, above which are parts of three legs and tail of three-toed dragon. Tail spinous and scaly.

In front of dragon a chevron pattern between two scalloped bands, and then beginning of repeat of another.

All very good work. Lined pink silk neatly turned in and sewn at edges. All faded to buff. One end finished in blunt point, the other cut straight. Perhaps from MS. cover, as *Ser.* iv. Pl. CXI, Ch. xlviii. 001. 13¼″ × 1¼″.

K.K. II. 068. Fr. of printed paper, in many pieces, soft and silky. Rows of monk-like figures seated in contemplation on long petalled lotuses and wearing sharply pointed cowl. Straight short rays form nimbus. Crude work. Frs. of Chinese characters below figures. Av. *c.* 3″ × 1¾″.

K.K. II. 069. Fr. of silk gauze; yellow and faded. Torn. 5″ × 5¼″.

K.K. II. 074. Remains of silk painting (perished), with dark silk border, and wooden stiffener at bottom. Subject, Buddha seated in Bhūmisparśa-mudrā on lotus. Supported on elaborate pedestal; the upper surface painted crimson, and the many-stepped mouldings and large central torus decorated with long rectangular panels filled with roundels in various interchanged colours. Colouring mostly dark red and green, much discoloured. Remains of paper backing. *c.* 22″ × 1′ 4″.

K.K. II. 075. Silk band and wooden weighting-stick, from bottom of painting (?); silk printed, with dull red ground and pattern in resist of buff-coloured lozenge-shaped spots. Lined with pale blue silk, and fixed into groove cut along length of stick. Stick plain round, painted red. Silk slightly narrows towards top. Silk 4″ × 14″ to 10″; stick, length 15½″, diam. ⅝″.

K.K. II. 076. Fr. of wooden weighting-stick from painting, with remains of paper adhering. Length 7″, diam. ⅝″.

K.K. II. 077. Fr. of paper pounce, torn. Pricked floral and scroll design, not wholly intelligible. One side of paper blackened. An old drawing has been used, the lines of which are traceable but have no relation to the pricked design. 13″ × 11″.

K.K. II. 078. Frs. of plain silk, faded pinkish buff, with loop of fine canvas attached. Prob. front of border of painting. Gr. length 13″ × 4″.

K.K. II. 080. Specimen of paper, soft buff, thin, felted, torn. Gr. fr. 5″ × ¾″.

K.K. II. 081. Remains of silk painting, dirty, torn and faded. Subject was standing Buddha, with young monkish attendant in adoration on either side. Coarse work. 2′ × 1′ 4″.

K.K. II. 082. Fr. of clay stucco lotus petal, ornamented in relief as K.K. I. 047. No colour. 4¼″ × 2¼″.

K.K. II. 083, 091, 092, 097. Frs. of clay stucco drapery. *083* shows wavy edges of flattened tubular folds; blue. 3$\frac{1}{16}$″ × 1¼″. *091, 092,* 'butterfly' bow, grey-blue. 5¼″ × 2¼″. *097,* hanging corner with tubular folds; green with red lining. 3″ × 1¼″.

K.K. II. 084, 098, 0113, 0150, 0174, 0195, 0228. Frs. of clay stucco 'caltrop' mail: gilded. *084, 0113, 0150, 0195, 0228,* reeded variety as K.K. II. 0197. Roughly modelled. Gr. fr. *0150,* lozenge shape. 5¾″ × 3¾″. *098,* with part of frame, red. Roughly modelled. 2¾″ × 1¼″. *0174,* evenly and well modelled. No reeds or rivet. 3¼″ × 4″. For other examples, see K.K. II. 0101, 0103, 0163, 0197, Pl. LV.

K.K. II. 085. Fr. of clay stucco ornament in relief; a double row of lotus petals, reversed, incurving at their bases where they join; outer edges of pearl ornament. No colour. Suggestion of raised decoration on each petal similar to K.K. I. 047. Good work. Material tough and fibrous. 2″ × 2¼″.

K.K. II. 086. Clay stucco human ear, badly modelled, painted red over white. Lobe normal and pierced. 4¼″ × 2″.

K.K. II. 087. Fr. of clay stucco band, painted white with red and green chevrons at intervals. 3¼″ × ¾″.

K.K. II. 088. Clay stucco finger, with long projecting nail. Gilded. Exactly similar to K.K. I. 012. 3¾″ × ¾″. Pl. LIV.

K.K. II. 089. Fr. of fresco, on mud plaster. Part of circle bordered green with black lines; centre yellow, spotted red. Ground outside red. 3″ × 2″.

K.K. II. 090. Fr. of clay stucco ornament, beautifully modelled (prob. part of jewel), coated thinly with white, over which gold. Ornament is composed of diverging flamboyant scrolls, beside a kind of lotus centre. Surfaces of scrolls are generally flat or slightly 'dished' (concave), terminating in projecting ends. 3″ × 1¼″. Pl. LIII.

K.K. II. 093. Fr. of clay stucco relief ornament, consisting of two lotus petals with a smaller one overlapping between. Dark blue, bordered with lines of salmon pink, pale yellow and dark blue. 2¾″ × 1$\frac{1}{16}$″.

K.K. II. 094–6. Frs. of three clay stucco fingers. *094,* painted pink over white and gilded; short nail. *095,* same as preceding, but nail long. *096,* red on under-side and nail, and blue on back; nail slightly beyond tip. *c.* 1½ life-size. Largest fr. 3$\frac{1}{16}$″ × 1″.

K.K. II. 098. Fr. of clay stucco mail (?); frame (?), painted red and links gilded over pale wash. 3″ × 2″. 2¾″ × 1¾″.

K.K. II. 099. Clay stucco L. hand of figure, palm outwards, clenching white double cord (?). Blue; palm red. Nearly life-size.

K.K. II. 0100. Fr. of stucco architectural (?) orn., similar to K.K. II. 0125. Surface convex with raised portion continuing curve of lower part. Badly damaged by water. 12″ × 6¾″.

K.K. II. 0101. Fr. of clay stucco R. forearm and hand of colossal figure in clay stucco. Sleeve close fitting, red, with panel of gilded mail, projecting on each side. Pattern of links of mail resembles a caltrop, with the fourth, outward turned, point replaced by small knob. Links are placed close together, as may be seen in the corslet of the Vaiśravaṇa in *Ser.* iv. Pl. LXXII, Ch. 0018; Pl. LXXIII, Ch. xxxvii. 002; and Pl. XC, Ch. xviii. 002, where it appears to interlace. Cf. also K.K. II. 0103, Pl. LV, for a fine example.

Somewhat roughly modelled round wooden core, in which is an iron nail at elbow for attaching core of upper arm and iron wire for attaching (missing) fingers. Hand white. Forearm seems to be flexed and hand turned back, prob. supporting some object. 11"×4". For other examples, see K.K. II. 084 &c., 0163, 0197. Pl. LV.

K.K. II. 0102, 0133. Fr. of fresco in two pieces. Outer edge, broad black border; next, band of buff. Within is scrolled background and thin knotted drapery (stole or girdle). Colours red, green, blue and shades of buff; outlines black. 17"×6¼".

K.K. II. 0103. Fr. of clay stucco mail-clad figure; deltoid (?) region. Mail is of plaited 'caltrop' type very regularly modelled and gilded. It seems to be held in a framing of steel or lacquered leather, painted grey, which runs from neck to point of shoulder and then turns down, tapering, to armpit. On top of shoulder is a knot of drapery; above mail a double cord, knotted and red. 6¼"×7". For other examples, see K.K. II. 084 &c., 0101, 0163, 0197. Pl. LV.

K.K. II. 0104. Clay stucco torso mask, with single close-fitting garment in red, crossing from R. shoulder below L. arm, leaving L. breast bare. Umbilicus indicated; two raised ridges round base of neck; narrow waist; broad shoulders. Flesh gilded. Well modelled. Fr. of paper with Chin. chars. adhering to front. 6¼"×4¼". Pl. LIII.

K.K. II. 0105. Fr. of fresco, showing L. foot with jewelled anklet, standing on Padmāsana with stylized petals in two rows; one turned up and other down with small palmette between adjoining petals.

Flesh pale pink, slightly shaded; sole of foot red. Anklet red, with white pearls and large jewel in front. Seed-table of lotus, pink; petals alternately pink and blue. Background black and red. Outlines of flesh red and of petals black. 8"×7½".

K.K. II. 0107. Fr. of clay stucco drapery from figure. Blue cloak with borders crossed at neck, decorated with alternating half-palmettes in blue and red, outlined white on red ground bordered with red and gold. From V of crossing issues loose white drapery, bordered gold. From L. shoulder fr. of loose drapery in grey, lined with red. 10¼"×10". Pl. LV.

K.K. II. 0108. Fr. of clay stucco figure; seated cross-legged. Head and arms missing. Red vest, close fitting; blue gorget with point front and back edged with raised trefoil scroll; loose white shirt hangs from vest, and red robe from beneath shirt, covers legs. Vest and robe may be one garment with white loin-cloth fastened at waist. Red band round upper edge of gorget. Figure slim and tall. Wooden core. 6"×2¼". Pl. LIV.

K.K. II. 0109–11, 0121–3. Six clay miniature votive Stūpas. *0110* is without much detail and has three tiers. The others are as K.K. 090, &c. *0122* is clearest, and shows base of Tee on top of dome. Av. height 3", width 3".

K.K. II. 0112. Clay stucco front half of sole of foot, with remains of yellow paint. Two first toes broken. 4¼"×5¼". Pl. LIV.

K.K. II. 0114, 0180. Frs. of clay stucco fingers, gilded. *0114* broken at both ends. 3"×1⅜". *0180* broken at lower end, recurved tip. Badly modelled; life-size.

K.K. II. 0115, 0128, 0129, 0131, 0181, 0204, 0205, 0212. Clay stucco rosettes, gilded. *015*. Round cabochon centre surrounded by circle of pearls between two plain rings; outer ray of short blunt-pointed petals. Diam. 1¾". *0128*. Cabochon centre surrounded by pearls and outer ray of six petals with round indented ends and 'eyes' at junction of their bases. Diam. 1¾". *0129*. Elliptical, peony in semi-profile similar to terminal rosettes on pearl pendent tabs K.K. I. *029*, &c. 1¾"×1¼". *0131*. Fr., sun-flower with centre high and double ray of petals bending back with tip slightly recurved. Diam. complete *c.* 3½". *0181*. Flat pyramidal shape, indented centre round which three rays of roughly incised radiating lines. Broken at one side. Diam. 2¼". *0204*. Pyramidal; centre, a four-petalled flower with plain boss; below, ray of blunt petals with deep midribs; outer and lowest ray, whirling scrolls. Diam. 2¼". *0205*. Pyramidal; centre of pearls surrounded by plain line from which issues double ray of lotus petals, each strongly convex and outlined with raised edge. About ⅓ broken away. Diam. 2½". *0212*. Double-rayed lotus with large flat centre, convex petals with rib edges and points slightly upturned. Outer ray of short incised radiating channels. Broken in two places at edge. Diam. 4". Pl. LIII.

K.K. II. 0116, 0140, 0176, 0177, 0179. Clay stucco leaves of trees in low relief on stick core; spotted yellow and red (blossom) and veined with grooves. 0140, 0176, 0179 broken. 3½"×1¾". Pl. LV.

K.K. II. 0117. Clay stucco Buddha mask. Pink; black hair shown by grooves slanting from centre R. and L. Top-knot coiled. Poorly modelled. 2⅜"×1¼".

K.K. II. 0118. Clay stucco animal skull, monkey (?), painted white with dark eye sockets. 2¼"×1¾". Pl. LIII.

K.K. II. 0119. Fresco fr., showing L. lower angle of face; elongated ear with circular disc as ornament; L. shoulder with grey drapery having red bands and scroll ornament between, roughly drawn in black; black long hair behind shoulder. Flesh grey. Adjoining shoulder prob. shoulder of second fig. in red drapery with black scrolls. Background red and buff. 5½"×5".

K.K. II. 0120, 0157. Fresco frs., painted in seven horizontal bands probably representing pavement. From below upwards, bands are black (plain), buff (plain), light blue, pinkish buff, light blue, light green and light blue, the blue bands narrower than others, and all ornamented with scrolls in brown outline, partly shaded. Ornamented bands bordered with narrow red lines. At R. upper corner of 0120 one (farther) leg and part of frame of platform drawn in perspective with boarded (?) floor (buff). Foot of leg is inverted red lotus; leg, brown; frame red on side, green on top. For piece of similar design see K.K. II. 0165. Gr. fr. 9" × 10".

K.K. II. 0124. Fr. of clay stucco drapery, red, with white or pink stole hanging down it. From large figure. Roughly modelled. 8" × 9".

K.K. II. 0125. Fr. of stucco ceiling or vault (?), surfaced with fibrous clay of the texture of loose felt. Shows painted portions of two long octagonal coffers divided and bordered by gold band, 1" broad. Edges of coffers in bands and lines of black and shades of grey and white, simulating mouldings. Field of coffers bright red of two tones on which very *free* and good grisaille floral ornament, in two tones of grey and white, outlined with red.

Upper edge of fr. chamfered, and surface generally shaped as though to fit coving of ceiling. Very good work. 8" × 11". Pl. LV.

K.K. II. 0126. Clay stucco negro head, coloured grey over red. Deep-sunk sockets for eyes which may have been made of beads; pouting mouth with thick lips; flat nose, heavy V-shaped brows. Close, Arab head-dress on top of head, and two thick turban-like rolls at back. Thick neck.

Pierced below for wooden core of attachment to body; well modelled. Height 1¾". Pl. LIII.

K.K. II. 0127. Clay stucco animal's skull, painted white with dark eye sockets. Broken away at top. 2¼" × 1¾".

K.K. II. 0130. Fr. of clay stucco flattened cloud scroll, gilded. 1¾" × 1¼".

K.K. II. 0132. Fr. of clay stucco, in form of single coil of cord (?) painted grey above and red below. Diam. 2¼".

K.K. II. 0134, 0136. Frs. of stucco architectural (?) ornament, coloured in same manner as K.K. II. 0125, Pl. LV. *0134*, irregular raised band and deeply sunk panel. 4¼" × 4¼". *0136*, a flat scrolled band. 6" × 3¼".

K.K. II. 0135, 0206, 0207. Frs. of clay stucco scroll orn., prob. all from same mould. *0135* shows portion of 'sunflower' rosette with petals in two tones of pink with a pair of blue reversed scrolls rising from behind and throwing off two smaller pink ones above, which support between them a central green petal shape. Adjoining L. blue scroll is a green one issuing from behind rosette and turning in the same direction as the adjoining scroll.

All scrolls are in a light tone on outer curve and dark inside. Broken on both sides and at top. Scraps of MS. paper on back. 4¼" × 4". *0206* shows R. side of similar orn. 4" × 2". *0207* shows central upper part, the colour of pair of top scrolls vermilion, and above central petal shape a vermilion knob. 3¾" × 3¼". Pl. LIII.

K.K. II. 0137. Fr. of clay stucco human R. hand, open, life-size, painted pink. All fingers missing. 5¼" × 3¼".

K.K. II. 0138, 0148. Frs. of stucco, painted as coffering ornament similar to K.K. II. 0125 (Pl. LV). *0138* badly damaged. 5¼" × 3¼". *0148* has one edge segmental, bordered with gold, and outside, following same curve, are bands of shaded pink, shaded blue and white (?). 4¼" × 3".

K.K. II. 0139, 0213-15. Clay stucco panels, and frs., in low relief. Oblong, square at one end and indented at other. Plain band border at the three straight sides turning inwards and downwards at fourth side into two half-trefoil palmette forms whose lower scrolled ends touch on middle line of panel. A half-rosette fills lower end; from this springs centre stem opening out into scroll-work which fills panel. Coloured chrome yellow. Prob. parts of border. *0139*, 2¾" × 5". *0213*, 4¼" × 2¾". *0214*, broken away at upper L. corner, and with fr. of paper Chin. MS. adhering, 4" × 2¾". *0215*, lower fr. only, 2¾" × 2¼". Pl. LIII.

K.K. II. 0141. Clay stucco human ear, pink, with cable-like black hair bordering inner edge and curved round lobe. 5¼" × 3". Pl. LIV.

K.K. II. 0143, 0154. Frs. of stucco painted in grisaille on red ground. Very elegant design cleverly executed. Prob. portions of K.K. II. 0125. 6" × 3¼". 6" × 2¼". Pl. LV.

K.K. II. 0144. Clay stucco toes and forepart of L. human foot, life-size. 3¼" × 3¼".

K.K. II. 0145, 0159, 0170. Clay stucco frs. of bodies of leopard in relief, yellow spotted black. *0145*, hind half only, in crouching pose, tail curled against side. 2¼" × 1". *0159*, advancing to L., mouth open, tail upraised, broken. Hind feet and one forefoot missing. 3¾" × 2". *0170*, same mould as 0145. Complete; two front paws together, head resting on them. 3¾" × 1¼". Pl. LIII.

K.K. II. 0146, 0153. Fr. of clay stucco coronet-like orn., consisting of green scrolls rising from row of gilt pearls supported by red band. To L. end of 0153 is pink petal of rosette resembling that of K.K. II. 0135. Prob. latter is central orn. of coronet. MS. paper sticking to back. 6" × 2".

K.K. II. 0147. Fr. of clay stucco pearl band, with double plain band on one side. Gilded. 2¼" × ¾".

K.K. II. 0149. Clay stucco amulet (or jewel); rectangular; within plain border, scrolls rising from half-rosette. 1¾" × 1¼".

K.K. II. 0151. Fr. of clay stucco, pink, with three Chin. chars., the upper and lower partly broken away. 2¾" × 1¼".

K.K. II. 0152. Clay stucco lozenge-shaped jewel with ornament in slight relief. Gilded. 3¼" × 2½".

K.K. II. 0155. Fr. of clay stucco sole of human foot. Gilded over pink. Heel missing. Poorly modelled. 4" × 5".

K.K. II. 0156. Clay stucco monkish figure, seated; enveloped in single green robe edged red and covering hands and feet. Head shaven, flesh pink; eyes small and staring. 3" × 1½". Pl. LIII.

K.K. II. 0158. Fr. of clay stucco human ear; edges damaged and lobe broken away. Gilded. Badly modelled. 5¾" × 2¼".

K.K. II. 0160. Clay stucco lotus petal; surface convex with keel down centre; painted in five bands of grey, from very pale outside to nearly black centre. 7" × 4".

K.K. II. 0161. Wooden terminal orn., long triangular; carved roughly in low relief in symmetrical cloud scroll; both sides alike and upper edge cut to contours of scrolls; at highest point a ¼" hole to receive tenon of finial (?).

Lower edge has central shallow groove, ⅜" wide ¼" deep, cut from front to back; and near each end, at undersurface, a projecting dowel for attachment to whatever it surmounted. Traces of red and black colouring on one side. 5¼" × 2" × 1". Pl. LXVI.

K.K. II. 0162. Wooden leg of small stand, curved like elephant's trunk with lower end turned outwards and upwards and cut to flat point. Upper part flattened at sides and back, slightly keel-shaped in front; flat on top, in which remain two small wooden dowels. Painted red. 4¼" × ¾". Pl. LXVI.

K.K. II. 0163. Fr. of clay stucco lorica, from life-size figure in painted stucco. Part of R. breast. Lorica seems to have a rigid double frame in which is flexible 'caltrop' mail panel. On shoulder, a knot of drapery, broken. Outer frame, red; on inner frame and mail panel, traces of gilding.

For other examples of 'caltrop' mail, see K.K. II. 084 &c., 0101, 0103, 0197. 13" × 7½". Pl. LV.

K.K. II. 0164. Fr. of clay stucco head. L. side of face only, with smiling mouth, large eye, and Tilaka. Much broken and defaced. Pink. Height 10". Pl. LIV.

K.K. II. 0165. Fresco fr. belonging to K.K. II. 0120, and having similar details. Only four pavement bands shown, and foot and part of leg of platform. To L. of this a broad green band extending from buff to top of fr. 7½" × 6".

K.K. II. 0166. Fr. of stucco architectural painted decoration; modelled in cusped border round sunk moulded panel; same style as K.K. II. 0125. Pl. LV. 5¾" × 3¼".

K.K. II. 0167. Fr. of clay stucco frill of drapery; green with gilded edge, bound at top with pink turban-like twist. 6¼" × 4¾".

K.K. II. 0168. Fr. of clay stucco head (?), covered with close 'snail-shell' spirals of black hair, applied separately. Some missing. 3¼" × 4". Pl. LIV.

K.K. II. 0169. Clay stucco arm of figure, painted yellow, and flexed. Hand missing; upper arm 3", fore-arm 3".

K.K. II. 0171. Fr. of clay stucco drapery, painted red. 5¼" × 4½".

K.K. II. 0172. Fr. of fresco of architectural features, composed of lines and bands in grey yellow and red. 3¼" × 2¼".

K.K. II. 0173. Clay stucco lotus petal, convex, with strongly defined 'keel'. Blue border, centre floral scroll in yellow, pink, green, blue and white on dark red ground. 5¼" × 3¼". Pl. LV.

K.K. II. 0175. Fr. of clay stucco figurine of warrior (?); in a kind of red tabard, short in front, and to haunches at back, with V opening in front at neck, bordered gold. Loose red Dhōtī tied with white girdle. Middle of body bare in front.

Legs, arms and head missing. Wooden pegs for attachment of legs. 5¾" × 1¾" × 1¼". Pl. LIII.

K.K. II. 0182. Fr. of clay stucco drapery, with two channels down its length. Blue. 10¾" × 1½".

K.K. II. 0183. Fr. of stucco, architectural (?) painted decoration, of same type as K.K. II. 0125. A well-modelled volute painted in lines of pink and gold, opening out in blue and white diverging lines. 6¾" × 5¼". Pl. LV.

K.K. II. 0184. Fr. of clay stucco demon's face, showing eye and part of cheek. Flesh yellow, spotted red. Eyeball (broken) shows mark in centre of applied iris. Massive eyebrow, black. Groove on lower part of cheek prob. shows edge of wide grinning mouth. 5¾" × 5". Pl. LIV.

K.K. II. 0185. Clay stucco mask of Buddha. Small well-marked features; long oblique eyes nearly closed, with brown irises and black pupils; nose delicate and slightly aquiline; curves of upper lip very arched, and edges defined by incised line; cleft in upper lip, chin, and dimples at corners of mouth well marked; chin small and square, defined by deep folds extending from wings of nose to bottom of chin; nostrils small; cheeks plump and smooth. Eyeballs appear to have been inserted from back of mask, and Tilaka from front (like a cork).

Colour generally yellowish pink with pale green under brows (either discoloration or shadow); green traceable on upper lip and chin; eyebrows black, well arched and emphasized by grooved line; red line round Tilaka. The whole well proportioned and well modelled. Damaged by water. 6" × 5". Pl. LIV.

K.K. II. 0186. Fr. of clay stucco mask of face; gilded. All R. side broken away above chin. Mouth nearly all cut away. L. eye, nearly closed, long and oblique. 6" × 6".

K.K. II. 0187. Fr. of clay stucco mask of face; gilded; L. side, eyes and ear missing. Well-shaped features; the

upper lip thick but refined, strongly bowed, and outline defined by raised edge surrounding pink. Good work. 6" × 4". Pl. LIV.

K.K. II. 0188. Clay stucco head, female (?); painted. Plump oval face; straight, normal eyes, small nose (broken) and mouth; delicate and rather weak chin. Eyebrows well arched; hair in short close curls (?) over brow, long in front of ears.

Tiara (broken). Hair at back in loose flat bands interlacing; at top it is drawn high up like a plume, but coiled into tight roll, presenting volutes at the sides. Flesh pink, hair black. Type very Etruscan. Stick projecting downwards from neck. 3¼" × 2" × 1¾". Pl. LIII.

K.K. II. 0189. Fr. of clay stucco mask of face, gilded; with long ear and black hair falling partly in front of ear. Lips red; eyebrow, outline of upper eyelid and iris, black. L. half missing. Type seems as K.K. II. 0185 (Pl. LIV), but in miniature. 2¾" × 2¼". Pl. LIII.

K.K. II. 0190. Clay stucco head and neck of snake or dragon. Large eyes and nostrils; mouth wide open; short teeth in upper jaw. Pink. Neck (at right angles to direction of jaws) thinned by cutting, to fit into socket of body. 2½" × 2¾" × 1¼". Pl. LIII.

K.K. II. 0191. Fr. of clay stucco drapery in green, edged gold; attached, a smooth convex portion painted crimson with blue and green floral ornament outlined white. 4¾" × 3". Pl. LV.

K.K. II. 0192. Fr. of clay stucco cords (?); brown. Two strands looped round another and ends hanging free, one broken away. 2¼" × 1½".

K.K. II. 0193. Clay stucco terminal knob; pear-shaped; pink. 2½" × 1¾".

K.K. II. 0194. Fr. of clay stucco band; thin; painted crimson and decorated with thin floral pattern between two lines in white. 3¾" × 1¼".

K.K. II. 0195. Fr. of clay stucco. L. arm of figure, in pink stucco. Hand missing. Flexed. Upper arm 2½", forearm 3¼".

K.K. II. 0197. Fr. of clay stucco 'caltrop' mail, with detail well modelled; gilded. Each of the three visible arms of the caltrop is channelled down its centre; an extra reed lies on each side of it, giving it the appearance of being composed of four reeds, the two externals being on a lower plane than the centre pair. At junction of the three arms is a knob (rivet or jewel). It is, however, not clear of what material the original could have been, nor how it was constructed. 5¼" × 2¼". For other examples, see K.K. II. 084 &c., 0101, 0103, 0163. Pl. LV.

K.K. II. 0198–201. Clay stucco lotus petals, slightly convex, painted in bands of grey of various shades—dark at centre of petal and light at edges, which are outlined white. 3¾" × 2¼".

K.K. II. 0202, 0203. Frs. of clay stucco drapery in free and elaborate folds, painted green with red lining. Very fibrous clay; very good work. Longest 5¼" × 2¼". Pl. LIII.

K.K. II. 0208. Fr. of clay stucco border, from halo (?) or mitre-shaped head-dress; inner edge plain red; outside, pearls, with outer border of flames. L. side missing. 6" × 5".

K.K. II. 0209, 0211. Frs. of clay stucco from painted border, of same type as K.K. II. 0100. Gr. fr. 4¼" × 3¼".

K.K. II. 0210. Fr. of clay stucco face (?), gilded; with rope of blue hair on one side. 2½" × 4¼".

K.K. II. 0216–18. Frs. of painted wood, of uncertain application. *0216*, box lid (?) in two pieces (now joined); concavo-convex, rectangular with traces of red paint at ends and one long edge of convex side, and with transverse lines of grey, with grey border and green ends on concave side. Four dowel holes, with three dowels in position near corners. At ends one of long edges cut away slightly as though for hinges. 6¾" × 5".

0217, rectangular, covered with green and yellow paint on one side, under which, where chipped, faint black Chinese written chars. 5¼" × 1¾".

0218, rough, rectangular, painted one side black with red and white blossoms. 7¾" × 1$\frac{5}{16}$".

K.K. II. 0219. Fr. of clay stucco, with convex surface, gilded. 3¾" × 2".

K.K. II. 0220. Fr. of clay stucco, rounded and painted bright pink. Part of surface shows mass of flowers or bunches of drapery, drawn in black ink over gilding. 4" × 2¾" × 1¾".

K.K. II. 0221. Fr. of clay stucco mask of face; L. side; gilded, with black hair, red lips, slanting eye and long ear. Exactly as K.K. II. 0189, but L. side instead of R. Surface of nose and top of head gone. H. 2¾". Pl. LIII.

K.K. II. 0222. Fr. of clay stucco seated (?) figure, showing back of lower end of leg covered with pink drapery, from which emerges ankle, heel and part of upturned sole of foot. Stripe of green paint Padmāsana (?) along lower edge of gilding. 3¾" × 1¾".

K.K. II. 0223. Fr. of clay stucco figure; R. arm bent, in loose white sleeve with black cuff. Hand clenched and drilled for spear (?); painted pink. Length 2¾".

K.K. II. 0224. Fr. of clay stucco, Padmāsana; showing two rows of petals, one row turned upwards and outwards and the other downward and outwards.

Petals have raised rib near edge with scroll relief orn. at tip; painted in one row, yellow and red with grey border, green and dark grey with red border, red with grey border; opposite row, grey and dark grey with red border, yellow and red with grey border, green with red border. Raised rib always white. In each row are two complete petals and a small portion of a third. Well modelled. 5" × 1¾". Pl. LIII.

K.K. II. 0225. Fr. of stucco relief hand, large life size. One finger extended, and part of other beside it. Two

end joints of fingers in the round, with gilded nail; remainder of back unmodelled. White slip and remains of yellow paint over surface. 4½" × (gr. width) 2" × 1½".

K.K. II. 0226. Fr. of clay stucco fig. in relief. Shell of torso, male, clad in tight-fitting crimson doublet or having flesh painted crimson; blue stole crossing body from L. shoulder with ends intertwined on breast. Blue girdle below waist, tied in tightly round hips with white overlap, and supporting red (?) Dhōtī. H. 4¾". Pl. LIII.

K.K. II. 0227. Clay stucco relief fr., of sheath, consisting of two double bracts overlapping at base and parting to each side. No paint. 2½" × 3½".

K.K. II. 0229. Fr. of clay stucco drapery; gilded, surface much defaced. V-shaped in section, with edges coming forward. 2½" × 2¾" × (gr. thickness) 1½".

K.K. II. 0230. Clay stucco Padmāsana of standing figurine, with white-painted R. foot preserved. Single circle of down-turned lotus petals,—apparently in metal (?), which has been removed leaving only impress on clay,—and flat seed-vessel painted black with yellow rings. Hole in middle where fig. has been broken off showing sockets for two pegs. Diam. 3" × 2½", h. *c.* 1".

K.K. II. 0273. c. Fr. of carved wood. A thin flat strip with opposite edges cut away symmetrically leaving a form which consists of a disc, in centre, and two crescents (?) placed back to back below. Rough work. Length 1¾", width ¾", thickness 1/16".

K.K. II. 0274. hhh. Fr. of stucco mask. Nose, part of upper lip, eyes and forehead with large circular projecting Tilaka; eyes nearly closed. Whole very flat and stylized. Red clay mixed with fine fibre. 2½" × 1".

K.K. II. 0289. Fr. of inscribed wood. Rough flat lath with several Chin. chars. at one end. Lath has been cut at ends and sides, removing some parts of writing. Traces of pink paint on one side. 7½" × 1" × ¾".

K.K. II. 0307. Wooden stick, roughly trimmed, with bark left in parts, wrapped round with silk waste, and many layers of torn Chin. MSS. Length 16", diam. *c.* ¾".

K.K. II. 0308. Fr. of stucco figure (?), almost entirely of paper and canvas. Perhaps part of torso. Cf. for material K.K. I. 068. A line of drapery seems to cross body. 4¾" × (gr. width) 3¾".

K.K. II. 0309. Piece of plain silk; soft, good weave, but dirty and full of holes. Crimson (?), faded to nondescript dirty grey. Has had corners tied crosswise to make bag for some object. Single Chin. char. written in two opposite corners. 21½" × 24¾" (selvedge to selvedge).

K.K. II. 0310. a–h. Misc. fabric frs., including:— (*a–b*) two frs.; very coarse plain-weave material of dark brown goat's-hair, with needlework pattern (indistinguishable) in buff; (*c*) fr. of chocolate-brown silk damask, with pattern of small repeating hexagonal spot, ground and pattern in reverse twills; (*d*) fr. of yellow silk damask, from border of painting with semi-conventional floral pattern woven in reversed twills; pattern hardly distinguishable for dirt; (*e*) fr. of plain cream-coloured silk; (*f*) fr. of loosely woven yellow silk gauze; (*g–h*) two frs. of fine open-work cream silk gauze, soft, woven in lozenge-mesh. All very dirty. *d* 12" × 3¾"; *h* and *g* 6" × 3" and 4½" × 2".

K.K. II. 0311. Fr. of silk painting, much worn and faded, showing standing fig. of demon or Vajrapāni, ¾ to R. General type as Vajrapānis of Ch'ien-fo-tung banners, see *Ser.* iv. Pl. LXXXVI. Fig. flaming-haired, with red horse-head (?) over forehead, and four-armed. Lower R. hand clenched, upper R. hand at breast holding link of thunder-bolt (?); L. arm not preserved. Three discs (buff) over halo, above.

Legs of fig. covered below by haloes of two other divinities; on R. blue halo, and male head, ¾ to R., with high red (magistrate's ?) head-dress and blue boar's head in front; on L., green halo, with black top-knot of other divinity, and phoenix (?) in front. 14½" × 5".

K.K. II. 0312. Wooden relief carving; in form of small pointed flame, with scalloped edge to suggest flickering. On flame is carved in relief male deity of Śivaitic appearance straddling with legs apart on two sprawling monsters, both hands at breast holding thunder-bolts. Wears apron-like Dhōtī, bracelets, anklets, armlets (marked by grooves on upper arm), and long necklace of skulls (?) reaching almost to knees and falling in front of wrists.

Long triple-headed skull (?) mace, held in crook of L. arm, rises above shoulder. Features regular and undistorted; elongated ears, tiara, and high wide top-knot of hair. Remains of vermilion paint on Dhōtī and background, and black paint on monsters. Good work. Hole through tip of flame for attachment to object,—perhaps vesica border of large fig. L. bottom corner broken off. H. 3¾", gr. width 1½". Pl. LIII.

BLOCK-PRINTS, DRAWINGS AND TEXTILE REMAINS RECOVERED FROM SHRINE K.K. II

K.K. II. 0227. a + K.K. II. 0253. c. + K.K. II. 017. s. iv. Block print on paper. Subject incomplete. To L. elaborately dressed seated Bodhisattva in loose full robe, ¾ to R. with simple nimbus and vesica with plain border. Long narrow streamers from elaborate head-dress flow over front of shoulders. Above and to L. six attendants; two upper ones with upward streaming hair (Lokapālas ?), one holding up the sun disc (with three-legged crow) in L. hand. Three lower ones, judges (?), in tall backward curved hats and long gowns with black borders; hands folded. To L. below, seated figure; head slightly tilted and eyes downcast, hands folded at breast; full robes. To L. of this a kneeling woman in full robes with hands folded. All look towards centre and each has a nimbus.

In foreground to L. a squatting elephant with hind legs like those of a lion, ears bovine, small curved trunk, tusks growing upward from lower jaw, eye surrounded by radiating lines.

To R. two seated figures, nimbate, in full robes and graceful head-dress, hands folded, looking to centre. Farther to R. a square altar covered with a cloth figured with double circle paterae, with pleated valance near top edge, falling below a border of chevron pattern. On centre of top of altar, a lotus pattern bowl containing indefinite objects from which proceed waving rays.

At L. corner of altar a kneeling figure in robe, across which run broad black bands. To R. a shaven monk approaches altar in deferential attitude, hands folded. A halo surrounds his head and lotuses support his feet, which are covered with thick-soled Chinese shoes. Beyond the altar a portion of an architectural scheme appears which may be the lower part of the central throne. The extreme foreground is occupied by cloud.

The description is compiled from three frs., all from the same original though probably not from the same printing-block. K.K. II. 0227 shows part of the L. and lower border lines, elephant, part of the two figures just above and part of the two seated in foreground. Paper very woolly at torn edges. 5" × 4¼". K.K. II. 0253 shows the whole of foreground with border lines, from elephant to monk and part of kneeling figure above elephant, part of two seated figures to R. of elephant, the altar and the two figures addressing it. Paper yellow and fairly firm. 8¼" × 3¼". K.K. II. 017. s. iv. shows the 'Bodhisattva', the six figures behind, the kneeling and seated figures above elephant, part of elephant's head, top of nimbus of seated figure to R. of elephant and on a detached fr. part of altar and upper half of monk. Paper soft, woolly and tattered. 7¼" × 4". Pl. LXII.

K.K. II. 0227. b. Two block-printed paper leaves, with Hsi-hsia text. One leaf decorated with two rows each of six seated Buddha figures, one row at top of page, the other at centre. Very crude and stylized. Below each figure five or six written characters, of which the first two and the last in each row are identical in all. The other leaf has text without figures. Paper buff and good. *c.* 7¼" × 5¼". Pl. LXV.

K.K. II. 0227. v. Fr. of paper leaf, with impression in dark buff of wooden block. Design bizarre and difficult to make out. The centre is occupied by an outlined figure combining a flattened Stūpa raised on a base with an extension above vaguely resembling the outline of a man with arms composed of undulating banners. Below base is a supporting Padmāsana. This central form extends almost the whole height of the picture.

Within the form, against base and Stūpa is a seated Buddha figure with halo and nimbus. The rest of the form is filled with an inscription in Tibetan characters. On the 'field' to R. and L. of 'head' is a pair of seated figures on clouds, with umbrella canopy over the head of each.

Symbols and floral forms fill all spaces, and a double line borders the whole. Lower L. corner torn away. Paper thin and buff. 6¾" × 3¾".

K.K. II. 0228. q. Fr. of two block-printed paper leaves, with Hsi-hsia text, decorated at top with row of six seated Buddha figures on each, exactly similar to K.K. II. 0295. cc (Pl. LXV). One leaf torn in half and lower part missing. The other torn. Top edge ragged. Buff. 6" × 3¼".

K.K. II. 0228. t. Fr. of paper, with drawing in line of eyes and L. ear of life-size head of elderly man of Chinese type. Paper thin and dark buff. Torn on all sides. 3¼" × 5¼".

K.K. II. 0228. u. Two frs. of coarse canvas, with traces of pale blue pigment (tempera ?) and paper backing. Gr. fr. 3¾" × 4¼".

K.K. II. 0229. a., 0239. c. Six frs. of block-printed paper leaf. The scene appears to be the adoration of a serpent or of a central figure (missing) in which the serpent takes a prominent part. The scene is laid on a richly tiled terrace or court of a palace of which one column and part of a complicated architrave are shown to the L. (II. 0229. a) with 'valance' and rolled '*chicks*' below the architrave.

On the same fr., which is in two pieces, are also seen within the colonnade :—to L. of column two clean shaven attendants wearing cassocks and black hats which have an erect portion at back rising above the low flat crown and perhaps club-shaped ribbons each side. The near figure with R. hand clasped by the L. is in a sort of pose of peaceful resignation, and the other bearing a censer (?). Lower parts of figs. hidden by ornamental balustrades in front of column. End of balustrade is just to R. of column and stops against a post surmounted by an open lotus finial.

To R. of column a female fig. with rippling hair dressed close to head curtain-wise over each temple. Mukuṭa, a jewel-like flower. She wears a full robe crossed over breast and carries in R. hand a sceptre or wand resting against her R. shoulder and terminating at the level of her head in a Madonna lily. She stands behind another robed fig. with elaborate head-dress and apparently seated on, or standing in front of, a high-backed carved chair. The whole of front of fig. missing.

Below in L. corner of picture a group of persons of which four are traceable. Two immediately below balustrade are dressed as the two above, the stiffened club-shaped tabs (or ribbons) shown clearly projecting at each side of lower part of back of hat. One has a long beard and the other a short 'goatee' and moustache. The other two figs., below, have deep fringes or pleats round lower edge of gown and hats of a generally similar shape to those above but more ornate in outline. All four hold in front of their faces a billet-like object. Part of pavement shows in foreground. A fine scroll border, white on black, runs round the three intact edges of picture.

0239. c is in four ragged pieces, three of which join and these together join to 0229. a. The tiled pavement is

continued, and on it near front is a great snake coiled, with head (missing) rising from centre and tail extending in two undulations to R. To R. and L. are standing personages in fine robes and hats bending deferentially towards centre of picture and holding short wand of office before their mouths. Between snake and figures to R. is a label with a few Hsi-hsia characters.

The fourth piece is a continuation of the R. group of figures. Part of border remains at lower edges; upper part and R. side missing.

Design and engraving good. Paper buff, fragile but fairly preserved. Height of complete paper leaf 10¾", breadth of connecting pieces c. 8". Detached fr. 4" × 1½". Pl. LXIV.

K.K. II. 0229. b. Fr. of block-printed paper leaf, with Hsi-hsia text showing part of row of seated Buddha figs. and 'baluster' ornament from same block as K.K. II. 0253. b. Paper buff, torn away on all sides. 3" × 1¼".

K.K. II. 0229. c. Fr. of paper with impression of fine and spirited wood-block. Three celestial figures (Lokapālas) descend, ¾ to L., on 'vermicular' cloud scrolls. They are dressed in loose swaying Dhōtīs and thin fluttering stoles. From their partially open mouths they are probably chanting. Their hands are in various poses of adoration; the last carries a long club in his L. hand. In the head-dress of each is a distinguishing crest, but these are too vague to determine their forms with certainty.

At top L. are two streamers of light proceeding from L. In R. top corner is black label bearing white Chinese (or Hsi-hsia) characters. Border black with Vajra in white at top. Torn at L. and part of lower side. Paper discoloured. 5" × 2¼". Pl. LXV.

K.K. II. 0229. qq. Block-printed paper leaf, with five columns of Hsi-hsia text on one side. On other, rough sketch of human figure with head-dress in form of upright ovate leaf. Paper buff, laid. 5½" × 4".

K.K. II. 0229. rr. i-ii. Fr. of paper, of many layers matted together, coarsely painted in green and red. Pattern indistinguishable. 6" × 2½".

K.K. II. 0230. Fr. of paper, with impression of upper part of seated Buddha similar to those on K.K. II. 0293. a. Paper soft and ragged. 3" × 1¾".

K.K. II. 0230. a. Fr. of block-printed paper leaf, with vertical band of lotus scroll opening into ogee forms within which are figures. One complete nimbate fig. in dancing pose on a lotus seed-table, playing cymbals. It appears to wear a loose robe with R. arm and shoulder bare (Buddha fashion); short legs, appear to be clothed in pyjamas.

Below is the lotus holding the seed-table and extending almost to the full width of band. The undulating stem which descends from it to the border lines below throws out lotus leaves and buds; but additional small scrolls and bracts are used to furnish awkward spaces. At top of fr. (torn) is lower part of a second ogee in which fig. appears to be seated. Paper buff, R. edge cut, bottom torn but shows border lines. R. side and top torn away. 5" × 1½". Cf. K.K. II. 0279. uuu. ii. Pl. LXV.

K.K. II. 0230. b. Fr. of paper, with part of block print showing portion of R. side of circle enclosing a subject, probably Avalokiteśvara, of which only a branch of willow growing from a slender long-necked vase, and the end of an object identified below, remain. On the space outside the circle a rough lotus petal border along bottom edge of paper. Flowers, grass and water (?) indicate landscape.

To R. a man (part only) stands on a rock gazing down at another man in black coat and cap enveloped in cloud, his hands in attitude of prayer and head turned towards first figure. This is the righteous man cast from mountain by an enemy, floating safely down to the flower-strewn ground.

Above are clouds and a storm-blown tree (to R.). A man is running along a cloud with hands held up to his head to protect it against a shower of hail-stones (?). A small label in centre of fr. bears an inscription in Chinese or Hsi-hsia characters. Paper dark buff, torn at all sides. 6¾" × 3¾". Pl. LXII.

K.K. II. 0230. d. Fr. of paper, with part of block print showing two figures ministering at a tall many-tiered shrine. To L. of shrine, a tree; to R. a label with Hsi-hsia inscription. To R. of label, the L. side of seated Buddha figure with haloes. To L. of tree a pavilion with short flight of steps. At top of fr. appears part of low plinth of building receding in perspective to R., with flight of steps towards which a figure seems to be walking. Grass in immediate foreground of picture. Paper worn. 5" × 2¾".

K.K. II. 0230. e. Fr. of paper, with part of block print of Paradise similar to K.K. II. 0233. b, &c., Pl. LXII. Part of front wall and pavement. Paper much worn. 3" × 3½".

K.K. II. 0230. vv. Fr. of plain silk, dark buff. Ragged and worn. 6" × 6".

K.K. II. 0230. ww. Fr. of canvas, with painting of hand holding hemispherical bowl surrounded by scrolls; all in black outline tinted green and buff with inside of bowl red. Torn at all sides. 3½" × 3¼".

K.K. II. 0231. a. Two block-printed paper leaves, with Hsi-hsia text; each leaf decorated across the top with a row of five seated Buddha figures similar to K.K. II. 0292. i, but much clearer impression. Usual characters at top and bottom. The two leaves were originally pasted together at their edges, but are now divided. They were unequal in width, one accommodating four figures and the other six. Paper buff and strong. 7" × 5¼". Pl. LXV.

K.K. II. 0231. b. Fr. of block-printed paper leaf, showing part of R. side of large picture representing probably the adoration of some central figure or object. Thirty-four figures are shown, all facing ¾ to L. All have haloes and some are distinguished by symbols. Three in foreground carry respectively a serpent, a sword and a Biwa. In second row one has four horses in the head-dress (Sūrya ?). Further back the Sun and Moon are visible. Several figures are shaven as monks; others have a high top-knot without or with ornaments.

In the background above are clouds and floating flowers and to L. is an elaborate Stūpa in a halo. Four labels have Hsi-hsia inscriptions. Lower edge has continuous Padmāsana border.

Engraving good, but rather mechanical in the repetition of the figures. Style Tibetan. Paper buff and in good condition, torn away at both sides. 8¼" × 7¼". Pl. LXIII.

K.K. II. 0231. u. i. Fr. of paper, composed of many layers matted together and painted dark green on one side with traces of red and white. 5" × 4½".

K.K. II. 0231. u. ii. Fr. of paper, similar to K.K. 0231. u. i, painted green with borders of narrow buff and broad red. Traces of red under green. 6½" × 5".

K.K. II. 0231. v. Block-printed paper leaf, with Hsi-hsia text decorated along top with row of six seated Buddha figures similar to K.K. II. 0233. uuu. Paper buff, very thin and torn. Upper L. corner in rags. 7½" × 4½".

K.K. II. 0232. ii. i. Fr. of plain silk, showing selvedge; buff. 10" × 3½".

K.K. II. 0232. ii. ii. Fr. of plain silk, buff. 3½" × 1¼".

K.K. II. 0233. Fr. of block-printed paper leaf, decorated at top with seated Buddha figs. similar to K.K. II. 0281. a. xxxviii (Pl. LXV), but with rayed body-halo and without 'bird'. Clean impression. Upper half of one fig. only and part of three spandrel leaves of next to R. Paper buff and woolly at torn edges. 2¾" × 1¾".

K.K. II. 0233. a. Block-printed paper leaf, with Hsi-hsia text. A broad sheet with row of 8 seated Buddha figures similar to K.K. II. 0292. i, but very much more crude and badly printed. Bottom row of characters worn off. Paper buff and woolly. 6½" × 5¼".

K.K. II. 0233. a. iii. Fr. of silk muslin, dull brown. c. 5" × 2".

K.K. II. 0233. a. iv. Fr. of silk muslin, dull yellow. Unevenly woven. 10½" × 2½".

K.K. II. 0233. a. v. Fr. of silk muslin, with rough painting in dull green and red with grey contour lines. Fragmentary and badly torn. Prob. part of votive picture. 12" × 4½".

K.K. II. 0233. a. vi. Fr. of coarse cloth (hemp?); white with narrow lines of blue in both directions forming a kind of check. Patch of plain blue paint on one side and scrap of paper adhering to reverse. 4½" × 2".

K.K. II. 0233. b, 0280. a, 0290. a. Frs. of block-printed paper leaves, showing parts of picture of a Paradise, all from the same original. All the lower part of centre missing. General scheme an elaborate Chinese palace standing in a lake. From the central façade the wings are set back in two parallel retreating planes. A balcony extends the whole length of the building and gives access to openings flanked by columns or pilasters. The eaves of a Chinese tiled roof with upturned corners are visible over central and second façades.

Two streams of water, one R. the other L., pour from end eaves and fall into lake below. '*Chicks*', or pairs of curtains, coiled or drawn up nearly to the top, appear between columns of these two façades.

Sloping gangways lead up to balconies from great forecourt which extends whole width of picture and is enclosed all along by an elaborate wall topped with roof tiles. Below the elaborate brick- (or wood-) work of the wall is a plain band against which are double festoons of jewels held up by half-rosettes and divided by tasselled cords, pendent between. In immediate foreground are rolling clouds and at extreme ends of wall two tower gateways with raking flanks; at each a small human figure in devout pose, apparently entering (a soul entering Paradise ?).

In centre of top of picture is a seated Bodhisattva figure with nimbus, and an enclosing Maṇḍala on which is shown a broad pagoda projecting R. and L. of figure. Beyond this are rays extending to the limits of a rectangular enclosing frame. R. and L. of Maṇḍala proceed four waving beams of light.

A group of four nimbate figures appears to R. and traces of a similar group to L. of central fig. Farther to R. in two last intercolumnar spaces of a second façade are two nimbate female figs., and a third approaches them up a gangway. To L. a similar group. In the two end spaces of third façade are two more figs. to R. and L. respectively.

From centre of picture stream two broadening wavy bands of light, one to R. and one to L., finishing at extreme upper corners of picture. On each of these are repeated five times a palace or shrine, a tree and a tank with little rings and small symbols scattered round. An extra tank appears at extreme R. Groups of figures occupy the forecourt.

To R. of centre is an orchestra of seven female celestial performers, all nimbate. The instruments include cymbals, mouth organ (*Wu*), clappers, whistle, conch (?), syrinx, the Chinese elongated lute and possibly another instrument not recognizable.

Clouds form a background and symbols (triangle, rings, &c.) float between figs. To R. are two labels with Hsi-hsia inscriptions. To R. a group of five nimbate monks (?) in adoring pose, having short black hair and flowing robes. Clouds and symbols form background. A Hsi-hsia label above foremost monk. In middle distance is seen a portion of lake with lotus. Farther to R. are five kneeling nuns (?), each with nimbus and a curious bow of light which bends forward from behind fig. and streams back behind nimbus. On this bow is repeated the shrine, tree and tank. The figs. have long hair drawn close to head and tied in small knot above nape of neck. Each fig. carries an object resembling a crown or ceremonial head-dress. Above these are the heads and shoulders of three demons with upward streaming hair and a 'king'. The farthest demon is probably four-armed and holds in R. rear hand the Sun. The demon below him appears to be Garuḍa.

Above foremost 'nun' is a two-column inscription. In immediate foreground on a fine cloud are two figures, perhaps kneeling (feet are hidden in cloud); one a warrior (Lokapāla ?) with hands clasped, the other perhaps another

warrior, but without headgear and partly shaven, holding some offering (crown or helmet ?). Below cloud is visible foot of a bastion of the wall.

To L. of centre of picture, fr. shows three nimbate, adoring monks; five kneeling celestial warriors (?) nimbate and with bands of light as with 'nuns' on opposite side; and three demons and a 'king'. One of the demons is a Garuḍa (?); one has a skull on front of head (Mahākāla ?), and the third has a cobra (Nāgarāja ?). Six labels bear Hsi-hsia inscriptions.

Down L. edge of paper is border of five-pointed double-ended Vajras, alternating with semi-rosettes in pairs, 'engaged' with side lines; cf. K.K. II. 0272 a.

Whole very elaborate and an important wood-block. The lower part of centre and to L. of centre about two-fifths of whole length are missing. 0233. b is complete L. fifth of whole; 0280. a shows about two-fifths of the whole upper edge, and a small detached fr. shows upper R. corner; woolly and torn; 0290. a shows perfect two-fifths to R. The whole was folded concertina-wise in book form. Paper buff. Total length complete was 20". Breadth of block 6⅞". Pl. LXII.

K.K. II. 0233. ttt, uuu. One block-printed leaf and a fr. of paper, with Hsi-hsia text and decorated across upper edge with row of seated Buddha figures similar to K.K. II. 0276. t, but more roughly printed. *uuu* shows part of six figures and is torn away on L. and upper R. Paper buff and thin. 7¼" × 4⅞". *ttt* shows part of four figures. Paper very thin. 3¼" × 2¼".

K.K. II. 0233. vvv. Block-printed paper leaf, with Hsi-hsia text, ornamented at R. half of top with cut of a standing saint (?), full face, leaning strongly to R. and steadying himself with a long staff which rests on ground to R. and crosses his body towards and beyond R. p. shoulder. R. hand on level of shoulder grasps staff, and L. hand prob. grasps it at breast level.

Figure has black short hair, no Uṣṇīṣa, double-line nimbus, and wears ample robe falling over both shoulders, with end carried over L. forearm. The whole in a single line frame; the background within frame filled with roughly waving upward curved lines which proceed from fig. Pose recalls Christophorus.

To R. and part of same block part of a niche with round arch surrounded by upward curved rays stopped by cusped line of extrados. Above extrados architectural detail not very clear. Below niche a Padmāsana and within niche something not recognizable. All R. side torn away.

Three columns of text come below ornaments, and three more columns extend from top of page at L. of ornaments to the bottom. Just below centre of extreme outer column is the fr. of a shrine with tall pointed spire. Very much torn. Paper buff but fairly strong. 7" × 3¾".

K.K. II. 0233. www. Fr. of block-printed paper leaf with Hsi-hsia text, ornamented along top with rows of seated figures of which three are partly present. The figures may be crude attempt to show Buddhas or Bodhisattvas. They are seated in Dhyāna-mudrā, and below each is a kind of flattened long-petalled chrysanthemum rosette.

The head is broad with long horizontal moustache, sharply pointed head-dress with ear-flaps. Halo round body, and nimbus at head. Rough rays proceed from R. and L. of nimbus. The head suggests a warrior with lion-like face, while robe and pose might be those of Buddha or an ascetic. Work very rough. The columns of text below show the usual two characters at top and the final one below. Torn straight down R. side. Paper buff and good. 6⅞" × 1¾".

K.K. II. 0233. xxx. Fr. of block-printed paper leaf with Hsi-hsia text, decorated across centre with row of seated Buddha figures, exactly like K.K. II. 0276. v. Upper half of page nearly all missing and also the R. half. Part of two figures only remain with two columns of text below them. Paper buff and rather soft. 5¼" × 1⅞".

K.K. II. 0235. k. Fr. of paper leaf, with five columns of Hsi-hsia script. On other side very rough sketch of running horse, badly drawn. Paper buff, laid, ragged at all edges. 6½" × 4⅞".

K.K. II. 0236. a, b. Frs. of paper drawings. *a* shows part of two borders and centre of a painted circular device. Centre, yellow divided by thin red lines into petal-like sectors. Crude. Paper soft, and torn, prob. laid. 7" × 3". *b*, four elongated enclosed palmettes, their bases meeting against a central circle thus forming a cross. Roughly drawn in black. Paper as above. 4" × 4½". Remaining frs. show a few written chars. (Hsi-hsia) and scattered lines.

K.K. II. 0236. c. Fr. of paper, with part of block print. Below, upper characters of six columns of Hsi-hsia. Above, part of a scene in which five figures appear to R. Two muscular persons with bare legs and arms, probably carrying staves, proceed to R. To L. of these, two figures clad in long robes (monks or judges) facing each other.

Extreme L. a figure similar to first pair, but wearing leg covering and Chinese boots, advances hurriedly to L. in fighting pose with clenched fists. The last only has part of face and head, the others being torn away. Drawing good and vigorous. Paper buff and torn at all sides. 5¼" × 2⅞". Pl. LXIV.

K.K. II. 0236. ccc. Fr. of plain buff silk. 3⅝" × 2⅝".

K.K. II. 0236. ddd, 0237. aa. Frs. of coarse canvas (hemp ?); painted or printed blue ground with round spots reserved. *0236. ddd*, 1⅞" × 2⅛"; *0237. aa*, 4" × 4".

K.K. II. 0238. a. Fr. of block-printed paper leaf on which is the L. part of a picture. To R. is large figure of seated deity on a fine Padmāsana, the actual lotus apparently standing on a stem which is hidden by figured drapery and supported by a rectangular base. Behind figure is an elaborate 'chair-back', rectangular to level of figure's chin and then arched over the head in scrolls springing from Makaras and crowned at top with a flaming jewel resting

on a lotus. Corners of rectangular part have antefixae ornaments. Within arch a nimbus with rayed border. Behind 'chair-back' and forming background to it is a rayed halo with plain border.

Figure is very stiff, has three heads, the centre turned slightly to R. Each face has three eyes. High crown in which the chief jewels are shaped as tall triangles. Narrow waist, high circular breasts, right arms, of which five are present. The four on L. beginning above, hold (1) fire, (2) wheel, (3) sword; the fourth lowered in *varada* pose. The lowest to R. is in front of abdomen, palm up, supporting a cup in which is a tiny human figure standing or sitting. At pit of elbow of the lower R. p. arm is a flame-shaped jewel resting against biceps.

Across breasts and shoulders a broad ornamented band. Round neck a jewelled wreath and hanging in front of body a long jewelled cord. Each wrist has a bracelet with flame-shaped jewel. Round abdomen a jewelled girdle from which depend loops of jewels and bells. A richly figured garment covers legs, and anklets encircle ankles. Round top of halo is a tree with bunches of long narrow leaves, and above are waving rays interrupted in centre by a label containing Hsi-hsia characters.

Down whole of L. side are nimbate female figures, ten in number, dressed in a similar manner but with more simple ornaments, all with hands in adoring pose. Five have low Mukuṭas and five high ones.

Clouds fill foreground and encircle top figure; decorated architectural mouldings extend from L. of seat to side figures. Picture is bordered on the three intact sides by rather crude five-pronged Vajras in white on a black band. Paper buff, good condition and cut along R. edge. 10¼"×4¼". Pl. LXII.

K.K. II. 0238. b. One block-printed paper leaf, with Hsi-hsia text and two rows of Buddha figures similar to K.K. II. 0227. b (Pl. LXV), but figures better drawn and engraved. Head-dress three-cornered, one corner rising above centre and other two projecting at sides above ears. From these lateral corners a line drops to each shoulder the equivalent of the ear-like projections of K.K. II. 0292. i. Pose in all Dhyāna-mudrā. Probably belongs to K.K. II. 0265. f. Paper buff and strong. 8"×3⅜". Pl. LXV.

K.K. II. 0239. a. Fr. of block-printed paper leaf, decorated with row of seated Buddha figures and trees. Two figures are nearly complete. A third to R. shows little more than the head, and a fourth to L. part of haloes. Each fig. is seated on a lotus of two rows of petals with double outlines.

Second fig. from L. is in single robe covering both shoulders, in Dhyāna-mudrā. Face well formed, eyes cast down, forehead broad, hair black coming down in peak at centre, below which Tilaka. Low flat Uṣṇīṣa with diamond white spot in front, long ears.

Halo to body filled with upward curving rays. Nimbus circular and plain. Third fig. has same robe which would leave R. p. shoulder bare but for small piece just falling over shoulder. R. hand in Tarjuna-mudrā. Pose and robe of other two not visible.

Between figures is a well-designed Bodhi tree growing from a cloud (?) supported by a peony (?). Below third figure from L. is part of a Hsi-hsia (?) character. Along top is a black border with a line or two above, and below it and on black in white outline are alternate double-ended Vajras placed horizontally and double circles. Design and engraving good. Paper buff, tender and much torn. Cf. K.K. II. 0279. uuu. ii. 5¼"×8¼". Pl. LXV.

K.K. II. 0239. b. Fr. of paper leaf, in two pieces originally pasted together. A group of adoring figures standing on a figured pavement of a design similar to that of K.K. II. 0229. a, 0239. c, of which it may be portion of another rendering.

The two nearest figures are to L. a nimbate female (?) in full black-bordered robe and a band of scroll ornament, white on black, on hem. To R. an elderly shaven monk in robes crossed with black bars, both in adoring pose. The other figures are incomplete. Paper buff and torn away on all sides, but portion of scroll border, as in example quoted, is present. 5⅜"×3¼". Pl. LXIV.

K.K. II. 0239. d. Fr. of paper, with drawing of seated Buddha roughly executed. Figure is seated on heavily draped Āsana. He is turned ⅜ to L. in teaching pose. R. hand slightly raised with two first fingers extended. L. hand rests palm up in lap. Voluminous robe leaving only chest bare to waist; on breast a Svastika. A badly shaped halo behind body to level of shoulders and a nimbus at head. No features are indicated on face, but a few small written characters are there. The Uṣṇīṣa is a gradual swelling and unlike the usual form.

In front of figure a draped altar bearing five sacrificial vessels. Proportions good and drapery carefully studied, especially that on L. shoulder. Paper thin, buff and torn at edges. 5¼"×4". Pl. LXIII.

K.K. II. 0239. ww. Block-printed paper leaf, in two halves pasted together, with Hsi-hsia text and decorated across top and centre with rows of six seated Buddha figures similar to K.K. II. 0257. o; but haloes and Padmāsans painted pink. Paper buff, torn at lower edge and L. corner, but otherwise in good condition. 6¼"×3⅜".

K.K. II. 0239. www. Fr. of silk muslin, with part of rough painting. Too fragmentary to make out. Colours red, blue, yellow and pink. Traces of gold. 5"×2¼".

K.K. II. 0239. xx. Fr. of block-printed paper leaf, with Hsi-hsia text, ornamented across centre by row of seated Buddha figures. Part of two only are preserved. These show a clean-cut block, clearly printed. Type is similar to K.K. II. 0276. t; but Padmāsana more carelessly drawn, and there are no angles at junction of haloes. Lines running from sides of hair to root of neck suggest long ears. No drapery lines excepting two lines at neck and two at R. ankle. Feet clumsily drawn with toes defined. Rays on body halo. Figure to L. in Dhyāna-mudrā. Fig. next to R. part of head only remains. Usual final characters

above figs. and part of first character of column below L. figure. Paper pale buff and good. 6" × 3½". Pl. LXV.

K.K. II. 0239. xxx. Fr. of plain silk, well woven; pale buff. 4¾" × 1⅞".

K.K. II. 0240. ii. Fr. of paper, with part of impression of block, showing parts of two kneeling figures among clouds, in devotional attitude. Dressed in voluminous ceremonial robes, bordered and partly banded in black. Nearest figure seems to have face in profile turned to L. and a circular halo is carried completely round, over neck drapery. Superimposed ornamental bands to L. probably indicate altar.

Border of picture, black, with Vajra and elongated rosette reversed. Engraving rather crude. Paper buff and torn at all edges. 3" × 3½".

K.K. II. 0240. jj. Fr. of block-printed paper leaf, torn away on three sides. Fr. shows very crude seated Buddha figure to R. with the usual two characters below, and one following. To L. part of another Buddha which seems to be larger, but this appearance may be due to the paper having become woolly and stretched. The more complete of the figures has an hourglass-shaped body but broader below. Four transverse lines serve to express folded legs and Āsana. A stole (?) crosses body from L. p. shoulder to waist. R. hand is held away from body nearly level with shoulder and touches line indicating halo. Face (upper L. p. part missing) is square and has nimbus. Paper buff and woolly at torn edges. 3½" × 1¾".

K.K. II. 0240. kk. Fr. of paper, showing rough fragmentary sketches. Lower part of elaborately robed figure apparently taking long stride. To back of this and another way up, head and L. p. arm of a man wearing high-necked coat and close turban. Paper buff and torn. 7½" × 4".

K.K. II. 0240. ll. Fr. of block-printed paper leaf, being lower R. portion with 'baluster' ornament similar to K.K. II. 0253. b, Pl. LXV. Paper buff and well preserved. 3½" × 3".

K.K. II. 0240. pp. qq. Small frs. of silk muslin, with traces of paint.

K.K. II. 0240. rr. Fr. of plain silk. Buff. 5" × 1¼".

K.K. II. 0241. a. Page from printed book, of Jātaka (?) stories. Page divided by two lines into four equal parts. In first (upper L.) and fourth (lower R.) are six columns of Hsi-hsia text. In second (upper R.) an old man, bald, wearing loose garment reaching to ankles, shoes, and carrying a long crooked staff. (Cf. K.K. II. 0242. b, 0285. b. vi.) He advances to R., approached by youth in long robe and Chinese lobate cap with tags hanging at back. His hands are together and his body bent forward as though in eagerness or curiosity. 'Vermicular' clouds drift from L. and upward, and flowers and stones indicate the ground. In third division (lower L.) a man sitting on ground, his left leg drawn up in pain and in involuntary effort to protect his body, which is being worried by a tiger (Buddha and the tigress ?). 'Vermicular' clouds drift from R. and upward. Roughly cut but cleverly conceived. Paper dark buff; torn in places. 7" × 4". Pl. LXIII.

K.K. II. 0242. a. i–viii. Frs. of block-printed paper book, with Hsi-hsia text and elaborate decoration. Owing to fragmentary condition of book it is impossible to recognize the complete scheme of the decoration, but it is approximately as follows: Upper half (?) of page has two standing figures on white ground, facing each other but divided by a vertical band of 'baluster' ornament of a character similar to K.K. II. 0253. b. The vertical half of a similar band stands on the outer sides of each figure panel. Below each figure is a column of finely proportioned Hsi-hsia characters, standing under an umbrella-shaped lotus canopy with upturned ornamental outer ends, suspended to which is a vertical string of jewels.

Between these columns is a column of floral ornament enclosed R. and L. by a broad black line and a thin one. To extreme R. and L. on the outer sides of text columns are narrower bands of floral ornament. The whole effect is extremely rich and elegant.

One fr. shows an additional column of text to R. with an inverted lotus above it, the column extending higher than the other text columns and having a boldly cusped arch with black spandrels above.

The pairs of figs. are sometimes Bodhisattvas or Lokapālas standing on lotus bases and dressed in graceful flowing robes and fluttering stoles, the head encircled by a single-lined nimbus. The other type of figure is the typical muscular, vigorously posed Dvārapāla, also in pairs standing on a rock and carrying a long mace. All figs. are of Ch'ien-fo-tung type.

In one of the central floral columns is part of the coiffure and nimbus of a smaller fig., and it is possible that such a fig. was in all the similar columns. Paper buff, brittle and very tattered. Engraving good. Gr. fr. c. 3½" × 2¼". Pl. LXIII.

K.K. II. 0242. b. Frs. of block-printed paper leaf, showing head, L. p. shoulder and hands of a figure, perhaps a mendicant, leaning on long staff, shaped at top like a dog's hind leg, which he grasps with both hands near L. breast. He is old, bald, with round excrescence on centre of skull, and wears a spotted robe loosely draped over L. shoulder and forearm. Fig. is enclosed in a plain line border. Paper buff, much tattered and torn at all edges. Lower part missing. (Cf. K.K. II. 0285. b. vi.) 3½" × 3".

K.K. II. 0244. a. xiii. Fr. of block-printed paper leaf, showing lower part of six columns of Hsi-hsia text. A large space below has three isolated stamps in black; two are rosettes with leaves on opposite sides and one a roughly elliptical solid black spot. Parts of double-line border appear near three edges of fr. Upper part missing. Paper buff and in good condition. 9" × 7".

K.K. II. 0244. a. xiv. Five frs. of block-printed leaves with Hsi-hsia text, one fr. decorated across upper edge with seated Buddha figs. similar to K.K. II. 0281. a. xxxviii,

t, v. One head and R. shoulder almost complete; small parts of three others. The 'bird' in this block is shown with a long neck. Impression not very good. Paper buff, soft and woolly at lower torn edge and at sides. Larger frs. 2¼" × 3¼".

K.K. II. 0244. a. xv. Fr. of block-printed paper leaf, with Hsi-hsia text, decorated along top with seated Buddha figures, same as K.K. *II.* 0238. b (Pl. LXV), but from less carefully cut block. Ear-like projections scarcely traceable, the downward line running sharply into side of face. Nearly all text torn away. Paper buff and in good condition. 2½" × 2¾".

K.K. II. 0244. a. xxvi. Several rags of plain blue silk muslin, one of closer woven green and one of closer woven blue. Average 5" × 2".

K.K. II. 0244. a. xxvii. Two frs. of buff finely woven silk, covered with printed black six-pointed stars, a few flying birds and a large black stain. Ragged. Gr. fr. 6" × 2".

K.K. II. 0244. a. xxviii. Three frs. of plain silk, all discoloured buff. Ragged. Gr. fr. *c.* 13" × 6".

K.K. II. 0244. a. xxix. Two frs. One of silk fabric, plain dull pink; one of silk gauze dyed dull pink with light buff spots reserved. Spots are regularly arranged in horizontal and vertical lines and are of two sizes. The larger, approximately circular, has the edges very slightly scalloped to form an octofoil 1⅛" in diameter.

The smaller is a quatrefoil ⅜" in diameter, and four of these are placed at even distances (about 1⅜" centre to centre) about each large spot. The groups of five spots are repeated at distance of about 2¾" centre to centre of large spots. The small spots have each a yellow centre. The large spots have two circular, yellow, five-petalled rosettes vertically one above the other and about ⅛" in diameter. R. and L. are two similar reversed foliate scrolls in black. Gr. fr. (gauze) 8" × 3½".

K.K. II. 0247. a. Fr. of drawing on paper. A man in seated pose enveloped in loose robes and with a scarf draped over head; L. shoulder and R. arm and shoulder. Face elderly, full, with long moustaches and lank beard and whiskers. R. elbow raised as though resting on something, forearm across body bringing hand in front of chest. L. forearm rests across L. knee, and L. hand holds stick of long-haired fly-whisk which rests in crook of arm. R. foot slightly lifted and tilted showing under-side of toes and part of sole. Rough sketch or tracing. Paper buff, torn away at two sides and tattered. 13" × 9". Pl. LVIII.

K.K. II. 0247. a, b; 0275. a. xi. Three frs. of block-printed paper picture. Very confused and bad impression from course block. Largest fr., K.K. 0275. a. xi, has much of L. edge intact and shows group of five persons surrounded by rocks or a rugged tree, looking to R. towards a heavily draped 'altar' standing on lotuses. Clouds appear in lower L. corner. Double border at lower edge, the outer showing an undulating white stem on black ground and the inner black Vajras alternating with black dots on white ground. Upper part and R. side torn away.

0247. a shows on upper border, same as lower, the head of a Bodhisattva with nimbus near centre of fr.; to R. head of an attendant. Above to R. the ends of five waving bands of light coming from farther to R. To extreme L. a leaf or tree in border (?). Background clouds (?).

0247. b shows double border at top and the Vajra and dot border carried down R. side. To L. part of halo with two attendants having long hair, large Mukutas and haloes on a cloud background. Paper buff, thin and badly torn. Gr. fr. 8¼" × 5¼".

K.K. II. 0247. c. Fr. of drawing on paper. Very rough sketch of rocky gorge with pine trees. Paper buff, thin and ragged. 15" × 9".

K.K. II. 0247. d. Fr. of drawing on paper. All below breast missing. Part of male figure in loose robe open in long narrow loop at chest. Face ¾ to L. is that of elderly man with narrow Mongol eyes and eyebrows sloping up towards centre. Small mouth, no beard or moustache. He grasps a branch of peony in his R. hand and seems to be holding it near nose as though to smell the scent. L. hand not visible.

From level of L. cheek-bone a curved line springs outward and upward as though to form a short nimbus, but after turning slightly inward above temple lifts up into a sort of Uṣṇīṣa. A mass of leaves and flowers rests upon the protuberance, partly covering the line which reappears on its downward curve to R. The outline of L. side of face, after reaching the temple, turns across top of forehead in large scallops. Halo has a concave trefoil indentation.

The features of face are drawn in a very beautiful free line and the drawing of nose is extremely fine. Face, hand and flowers are drawn with a fine-pointed brush; the drapery, with a coarser brush in free bold lines. Paper dark buff and very ragged and torn. There are four inscriptions in Hsi-hsia (?) characters: one in top L. corner of paper; one to L. of peony held in the hand; one written obliquely on drapery just below opening at chest; fourth on drapery at L. p. shoulder. 15" × 14¼".

K.K. II. 0247. e. Sheet of paper, with two detached drawings or tracings. One is a standing figure with muscular body and limbs of warrior, clothed only in ample loin-cloth tied with girdle round hips and hanging in rich folds to knees in front and rather longer where it drifts out behind. A rich jewel rests on chest tied by narrow cloth bands of which four long ends float in the air R. and L. Pose is a spiral twist from knees upward. Lower legs in profile to L.; head ¾ to R. L. p. arm upraised with hand clenched. R. p. arm drawn slightly back and held at R. p. side, so that shoulders, wrist and clenched hand only show. A pair of bangles on L. p. wrist.

Face torn away, but seems to have issued from gaping jaws of a lion whose head and mane form head-dress. Drawing very free and skilful and shows observation of anatomy.

Above this figure and at right angles to it is ¾" back view of an elderly man with long beard and moustache, large mouth with projecting under lip, coarse nose and bulging eye. His head tied in a cloth or a cloth cap, with two narrow bands hanging from back. He wears a loose fitting coat with very full sleeves and belt at waist. He faces and leans slightly to R. A few lines in front of top of head suggest his L. clenched hand raised.

All below waist lost. Drapery simple but vigorously drawn. Paper buff, torn at both long edges and through long centre line. 21"×9". Pl. LIX.

K.K. II. 0247. f. Fr. of paper with lines of large drapery. Paper discoloured to dark brown and roughly torn. 15"×5¼".

K.K. II. 0247. g. Four frs. of paper, two showing a line or two and one a faint inscription (Hsi-hsia). Gr. fr. 9"×3".

K.K. II. 0247. h. Fr. of paper, with part of life-size drawing of man's head, ¾ to L. All above brows and below chin missing. Apparently an elderly face similar to that of K.K. II. 0247. d, but not well drawn. Beginning of nimbus appears at side of cheek. Paper buff and ragged. 11"×4½".

K.K. II. 0247. i. Fr. of paper, with part of large drawing pricked as a pounce. One edge intact; starting from there can be identified an outer border ¾" wide of meandering stem with leaves. Next, another border 1¼" wide with bolder leaves and flowers. Beyond is probably main subject showing mixed leaves and flowers; across them run two narrow bands and next to one of these a carefully studied bird's wing. All drawing good. Paper buff. 13"×3½".

K.K. II. 0247. j. Fr. of paper, with drawing of large lily and a few other lines. Paper buff and ragged. 5"×5".

K.K. II. 0247. k. i, ii, iii. Three frs. of paper with parts of drawings. (*i*) Shows drapery lines, including a large knot. Perhaps part of K.K. II. 0247. d. 4"×5¼". (*ii*) Part of small hand with long nails, holding large flower. Poor drawing. 4½"×3¼". (*iii*) Part of two figures in loose flowing clothes, moving to L. Figure to L. very incomplete; that to R. wears loose trousers, shoes and long sword. Head missing and both arms excepting elbow of R. 3½"×5".

K.K. II. 0247. l. Fr. of paper, with part of drawing of large figure. Swag of drapery crosses straight folds and at one side a pendent strip with large knot. Above swag a large flower-like jewel with pearls attached. Bold drawing. Paper buff. 7½"×6¾".

K.K. II. 0247. m. Fr. of paper, with drawing of head (prob. a Bodhisattva). All below upper lip missing. Pose, ¾ to L. Eyes oblique and downcast; small nose, moustache, Tilaka on forehead. An elaborate and lofty jewelled head-dress. Hair in loose masses at forehead and a head-band carried down in front of ear and across it. Paper buff. 6"×9".

K.K. II. 0248. a. Two block-printed paper leaves, back to back with ten columns of Chinese (?) text on one and a picture of a Bodhisattva on other. The Bodhisattva is seated full face on a rocky platform which narrows symmetrically below into stem and spreads out again to form base. Water occupies lower half of picture. Figure has L. p. leg folded horizontally in usual manner, but R. is upright with foot planted on rock.

An elaborate head-dress suggests Vajra or flame, but may be flowers and leaves. A tripartite bow projects above each ear and long waving streamers descend from them behind shoulders. Eyes are cast down. Tilaka large and in forms of lotus in profile. Hands missing. To R. stands tall narrow vase containing sprig of willow. Whole figure and platform enclosed in a single line halo, above and around which are stratified clouds. Probably Avalokiteśvara in a rendering of the vision also shown in paper painting from Ch'ien-fo-tung, *Ser.* iv. Pl. LXXIX, Ch. i. 009.

Borders well designed in white on black. At top central rosette from which proceeds R. and L. an elaborately designed handle terminating in a wavy edged sword-blade. At bottom a somewhat similar design, but terminating in Vajra ends. Sides are of similar rosettes, leaves and buds. Paper much discoloured and brittle. 8½"×6¾". Pl. LXII.

K.K. II. 0251. c. Seven paper leaves of a book printed in Hsi-hsia characters. One leaf is portion of a picture and shows two adoring figures seated on Padmāsanas, each with one knee raised and the corresponding foot on Padmāsana. Elongated haloes to body and head. High head-dresses.

Above and behind, three adoring figures of which legs are hidden behind haloes of first figures. Elongated haloes; head-dresses like upstanding long leaves or feathers. Trees behind. To R. is hand of figure grasping some object. The five adoring figures are on a terrace with geometrical tiled front. Foreground: stones, grass, and flowers. Paper buff. Size of pages 4½"×2½".

K.K. II. 0253. a. Block-printed paper leaf, with Hsi-hsia text decorated at top with row of seated Buddha figures. Four figures are shown and part of two more. Head-dress and face are rather like K.K. II. 0233. www., but moustache smaller. Padmāsana is a half chrysanthemum or the flower in profile. In four of the figures, drapery on body is represented by a series of closely placed zig-zag lines running horizontally. Rays, starting from junction of nimbus with body halo, proceed from all round nimbus, but are limited in their length by angular lines drawn across top corners of enclosing frame. This gives the effect of a hexagon of which neck forms lowest side. Torn away at bottom and L. side. Paper buff, thin and fragile. 6"×6". Pl. LXV.

K.K. II. 0253. b. Block-printed paper leaf, with Hsi-hsia text, decorated across top with row of three seated Buddha figures of same type as K.K. II. 0281. a. xxxviii. All heads torn away. Centre fig. in a teaching (?) pose, that to R. in Chin-mudrā, to L. in Dhyāna-mudrā. Below

each fig. a column of text, and between these ornamental vertical bands of baluster-like columns each supporting a symmetrical, foliate, double bracket which spreads R. and L. and invades upper corners of text columns.

Baluster is on solid black ground and consists of elongated polygonal capstan-like section, to lower end of which is attached a squat flower-like tassel. Below this is a ball pierced with two holes and supported on a horizontal band above two short diverging stems. The stems rest on a second band supported by a cup-like lotus. Below lotus the 'capstan', tassel, lotus, two bands and an inverted lotus as base. The effect is rich and decorative. Paper buff and torn on all sides. Cf. K.K. II. 0293. a, 0240. ll., 0282. b. xii. 5¼" × 3½". Pl. LXV.

K.K. II. 0253. d. Fr. of paper leaf, with block-print impression showing four adoring figures on Padmāsanas, two in front and two behind and above. Similar in type to K.K. II. 0231. b (Pl. LXIII). Musical instruments and flowers float in air above. Paper dark buff, torn away at R. side. 7⅝" × 3¼".

K.K. II. 0254. Fr. of paper leaf, with block-print impression of warrior (Dvārapāla ?) standing on water-worn rock. He stands in threatening pose to front, R. p. foot drawn back and L. p. foot advanced. Shoulders bent forward and head facing ¾ to R. with long hair violently blown forward. R. p. hand holds long sword in thrusting pose; L. p. arm stretched forward with hand up and fingers distended.

Elaborate warrior dress with agitated stole, feet bare. A few clouds float above and two Hsi-hsia characters appear at top R. corner. Well drawn and engraved. Paper pale buff; ragged. 4½" × 2¼". Pl. LXII.

K.K. II. 0254. r. Fr. of plain silk. Pale buff; ragged. One edge shows selvedge. 8" × 4".

K.K. II. 0255. dd. Fr. of white silk, woven in a small all-over diaper in twill, called in India 'bulbul-chashmi'. 6¼" × 1¾".

K.K. II. 0255. ff. Fr. of painted silk, from lower edge of picture. In lower R. corner, lower part of figure in pale yellow robe seated on mat. Slightly above to L., part of large Padmāsana with small foot (?) standing to R.; all painted pink. Coarse work; much torn. 5" × 9½".

K.K. II. 0257. f, g. Two block-printed leaves of paper, with Hsi-hsia text. *f* is exactly similar to K.K. I. ii. 02. bb, but different text excepting the usual repetitions, and eleven figures in a row instead of twelve. Paper buff, but in good condition. 8¼" × 6⅞". *g* has the R. half similar to *f* with eight figures in a row, and the L. half eight columns of text without figures. It was probably intended to be folded in halves. Paper buff, torn and woolly in places. 8" × 9¼".

K.K. II. 0257. o. Part of block-printed leaf of paper, with Hsi-hsia text, formerly pasted by one edge to a continuation (missing). Decorated with a row of three and a half seated Buddha figures along top edge and the same across centre. Similar to K.K. II. 0263. a, but centre of Uṣṇīṣa point solid black. Torn. Paper buff, thin and smooth. 8⅞" × 2⅞".

K.K. II. 0258. a. Block-printed paper leaf, with Hsi-hsia text decorated with a row of seated Buddha figures across top and another across centre, from same original as K.K. II. 0263. a. Paper buff and in good condition. 8⅞" × 3⅞".

K.K. II. 0258. b. Fr. of block-printed paper leaf, with Hsi-hsia text decorated across top with row of seated Buddha figures. Two are complete and three others have parts missing. Same type as K.K. II. 0239. xx (Pl. LXV). Paper buff, thin and much torn. 6¼" × 4¼".

K.K. II. 0260. Fr. of paper, with rough drawing of large drapery folds and an ornamental hook or clasp (?). A Chinese or Hsi-hsia character near one edge. Very rough and fragmentary. Paper buff; torn. 5" × 7".

K.K. II. 0260. h. Fr. of block-printed leaf of paper, with Hsi-hsia text. Middle part of leaf showing row of six Buddha figures same as K.K. II. 0263. a. Paper as in K.K. II. 0263. a. 3" × 3⅜".

K.K. II. 0260. q. Fr. of paper, with block-print impression of Buddha figure seated on Padmāsana in a robe which covers body and legs, leaving R. p. shoulder, arm and breast bare. Figure to front with head turned ¾ to L. In L. hand an object (small figure) held at breast level, the R. hand held beside it, fingers directed upward. Behind figure is rayed halo and behind head a nimbus, also rayed. Padmāsana is supported by pedestal; in front an altar draped all round with knotted altar-cloth, supporting votive objects.

Elderly, rather emaciated, nimbate monk dressed in official robes stands in reverent attitude to R. Clouds and flowers occupy background. Upper part of face and head of Buddha torn away and all L. side of picture. Paper buff. 4⅞" × 2¼".

K.K. II. 0260. v. Fr. of paper, with block-print impression of part of large picture. In front two kneeling devotional male figures each on mat. Figure to L. wears black robe; white girdle; a black hat very closely resembling a modern Parsee hat. To R. the second figure in bulky robes, black bordered, head bare and bald. Nearly all of this figure is missing.

Between these two and farther into the picture is a figure similar to second, kneeling on mat with rich ornamental border. At his side hangs a cord with nine beads widely spaced and so arranged as to suggest a constellation; or it may be a device work upon a strip of cloth which hangs from his girdle.

Immediately behind him beyond farther edge of mat an object standing on ground; it has appearance of a short slightly curved horn resting base downwards on small balls. Just above is a label with Hsi-hsia characters, and to L. of it some flowers.

To L. of mat and touching it is a growth like 'tree-coral'.

In front of near edge of mat and near black-robed figure, a Hsi-hsia label; to R. of that two overlapping hollow rhomboidal figures having a small ball at each of the disengaged angles.

To L. of black-coated figure, the edge of another mat with part of drapery of another figure. Rolling clouds in foreground. For parts of same picture, cf. K.K. II. 0283. a. xviii; 0285. b. xi. i. Paper buff, and torn away at three edges. 4½" × 3½". Pl. LXIII.

K.K. II. 0260. w. Fr. of embroidered silk. There appear to be three layers of silk fabric; the back or lowest a finely woven plain cloth; the next inwoven with a thick 'tram' warp with widely spaced thin weft; the third a sort of crazy gauze of stoutish yarn evenly woven with a sort of 'oatmeal' texture.

The embroidery worked mostly in kind of long feather-stitch right through the three thicknesses. Pattern is floral with large lily-like flowers and large broad leaves; only colours now recognizable are white, green, blue, and a rich brown. Very ragged and discoloured. 6" × 5½".

K.K. II. 0262. Fr. of paper, with block-print impression of Bodhisattva seated on Padmāsana resting on base. Figure turns head ¾ to L. and is in teaching pose. Loose robe open at breast. Tall coiffure from which seems to proceed a single wavy beam of light. Body halo with double plain border and overlapping groups of three upward curving lines on field. Plain nimbus. A Hsi-hsia label at top R. and remainder of ground covered with cloud. Well drawn. 4½" × 3". Pl. LXIV.

K.K. II. 0263. a. Block-printed paper leaf with Hsi-hsia text, decorated along top edge and across centre with rows of six seated Buddha figures. Pose of all Dhyāna-mudrā. Each figure dressed in single robe, no hands visible, head covered with 'Lāma' cap with high Uṣṇīṣa crown and sides coming over ears to shoulders. Vesica and nimbus. Padmāsana of single row of downward pointed petals. Simple treatment and rather rough work. Paper buff, torn, but in otherwise good condition. Cf. K.K. II. 0257. o, 0258. a, 0260. b, 0265. a. 8" × 3½".

K.K. II. 0263. b. Fr. of paper, with block-print impression. To R. a corner of a draped altar; behind it a standing monkish figure with hands together and having a plain nimbus encircled by clouds. To L. of altar and approaching it, a standing figure in profile in long spotted robe, bare feet resting on small lotus, hands together and back slightly bent. Features rather large. Head-dress perhaps a crown or floral, with snake rising from it. Plain nimbus.

Behind figure a confused mass of forms badly abraded but showing animal heads and many grotesque faces. Clouds in foreground. A railing in background with banana plant to L. In top L. corner an inscription in six lines of Hsi-hsia. Crudely cut but interesting. Paper buff and worn. 7½" × 3½". Pl. LXIII.

K.K. II. 0264. c. Block-printed paper leaf, with Hsi-hsia text decorated with row of five seated Buddha figures along top of type similar to K.K. II. 0292. i, but much coarser and carelessly printed. Paper buff, good. 7½" × 3½".

K.K. II. 0265. a. Part of block-printed paper book; four double leaves and one single, with Hsi-hsia text, each page decorated along top and across centre with rows of six seated Buddha figs. exactly similar to K.K. II. 0263. a. Lower third decayed. Paper buff and in good condition. 6½" × 4". Pl. LXV.

K.K. II. 0265. b. Three paper leaves, of a book and a small square piece. Two of leaves printed in Hsi-hsia; third has block-print impression of part of large subject. It shows a crowd of fifteen figures all in adoration inclined to R. Figures are arranged in five rows of three each. Front row all kneeling, one to R. probably female in beseeching pose on lotus pattern mat. Other two on ground, the centre one with long beard and ox-head (?) crest.

In next row, figure to R. has Western crown. Third row, to L. perhaps Hanuman. Fourth row, figure to R. aged with upward streaming hair. Centre figure has long lank hair and seems to be cutting his head or banging it with some implement. Fifth row, to R. a bird's head (Garuḍa ?); in centre spotted figure holds up a disc in each hand (Sun and Moon) and has long upward-streaming hair.

All figs. nimbate except centre top figure. Scene, probably Nirvāṇa. Rough cutting. Paper buff. 7½" × 3½". Small oblong piece shows a large Hsi-hsia character written within a printed fret border surrounded by broad black. 1½" × 1½". Pl. LXIII.

K.K. II. 0265. f. Two block-printed paper leaves, with Hsi-hsia text. One, a broad sheet divided by cutting down centre at lower half; the other a narrower leaf. The broad leaf has two rows of seated Buddhas similar to K.K. II. 0227. b (Pl. LXV), but execution like K.K. II. 0238. b (Pl. LXV). Originally twelve figures in each of two rows. The narrower leaf, torn away at L. edge, has eight figs. remaining across centre and two at top. Paper buff, torn and becoming woolly. Gr. fr. 7½" × 8".

K.K. II. 0266. p. Fr. of paper leaf, with Hsi-hsia text ornamented along top with row of seated Buddha figs. and divided into columns by 'baluster' ornament. Different from other examples with similar scheme of enrichment. The whole is in line-work with no solid black masses, as for example black hair and backgrounds. Figs. are of the same general type as in K.K. II. 0293. a, but simplified. They are wearing voluminous robes with R. p. arms and chests bare, excepting for fold drawn over R. p. shoulders.

In each space between figs. and hanging to top line of page is half of eight-petalled rosette enclosed by single semicircular line on which are strung pearls and a small rosette. At lowest point from this depends a vertical line with pearls, terminating in a flower-like tassel. Below each fig. a three-cusped arch rests on baluster columns, the face of arch ornamented with closely set two-lobed petals. In spandrel a half-rosette against horizontal line. Within arch, a pair of small curtains looped up as 'swags',

with three pendent lines between, each sustaining a pearl. Balusters much less elaborate than K.K. II. 0253. b. Rather careless engraving. Paper buff and much torn. 4¾" × 3¾". Pl. LXV.

K.K. II. 0266. z. Fr. of paper, with drawing of long folds of drapery. Paper buff and ragged. 15" × 8½".

K.K. II. 0267. ff. Fr. of paper, with roughly painted geometrical forms. At three outer angles, space filled with bold trellis in black, red and green resp.; fourth has traces of same treatment in red. Paper pale buff, torn at all edges. 9" × 8".

K.K. II. 0267. gg. i, ii. Two frs. of paper, with two roughly drawn symbols in black, repeated a number of times in various sizes and directions. Paper buff. Gr. fr. 6¼" × 2¾".

K.K. II. 0268. d. Block-printed paper leaf, with Hsi-hsia text decorated across top with row of five seated Buddha figures. A very rough and bad attempt to reproduce those on K.K. II. 0231. a (Pl. LXV). Paper buff and good. 7½" × 3¾".

K.K. II. 0268. e. Fr. of paper, in two pieces formerly stuck together at edges. Contains bold drawing in dense black lines of lower part of heavily draped figure seated on lotus. R. p. foot, drawn with wonderful freedom of line, appears sole up and has rather long nails. Waist-band and portions of hem of robe decorated with elaborate scroll-work. Elbow and part of R. p. arm shown with forearm flexed upward. Paper dark buff and ragged. 11" × 10".

K.K. II. 0269. k. Fr. of plain silk, rich buff. Selvedge at one edge. 4¾" × 1¼".

K.K. II. 0270. aaa. Four frs. of block-printed paper leaves, with Hsi-hsia text; ornamented at top with row of five seated Buddha figures (one detached), very crudely executed and coloured roughly with red, yellow and grey paint. Figs. are in various poses and are all dressed in red robe, with yellow flesh, grey halo, white nimbus outlined red which rises to a point and supports an umbrella alternately red and yellow. The umbrellas are not engraved but merely painted in. Red rays on yellow ground behind nimbus. Padmāsana with double row of petals roughly outlined red. Paper woolly and ragged. c. 4" × 4½".

K.K. II. 0270. ww. i. Fr. of hemp (?) canvas; probably from shoe. 1¾" × 1".

K.K. II. 0270. ww. ii. Fr. of plain silk muslin, pale buff. One edge selvedge. 6¼" × 1¾".

K.K. II. 0270. zz. Fr. of paper, with printed Hsi-hsia characters forming probably Yantra. Within outer border of double lines a column of characters. In centre (?) of paper another column terminating at its lower end in a small circle; from this radiate thirteen straight lines; suspended from each a column of characters. About 1½" above uppermost line to L. an ornamental flower or leaf. Paper pale buff, ragged. 4" × 5".

K.K. II. 0272. a. Fr. of paper leaf showing part of picture of Paradise, a modification perhaps of K.K. II. 0233. b, &c. (Pl. LXII). Only small portion of upper part present, the rest torn away. To L. a tree, then to R. a window, a label of Hsi-hsia, an architectural niche containing fig. with Mandala resembling roughly central fig. of K.K. II. 0233. b, etc.

To R. a vertical band of Vajra and half-rosette pattern; then a window, passing across which is outer end of wavy band of light bearing shrines and symbols. Then another window and head of nimbate fig. against a ground of waving rays; a pilaster and window against which another nimbate female (?) head. Paper buff and woolly where torn. 8" × 3".

K.K. II. 0272. z. Number of frs. of paper, with cursive Hsi-hsia writing, much of it deleted by lines drawn through it. Symbol of K.K. II. 0267. gg. i, ii, appears twice. Paper buff, soft and some matted together. Gr. fr. c. 8" × 5½".

K.K. II. 0274. a. Frs. of six block-printed paper leaves, of Hsi-hsia book. Front page shows part of a picture in which thirteen figures of Bodhisattvas and demons are all looking to R. Several of the figures have Hsi-hsia labels over them, and all have distinctive symbols in their head-dresses.

Beginning at top, one has a lion-head, the next a serpent apparently coming from the L. eye. Below, one has a single horn and upward streaming hair. Below a female (?) with a dove-like bird with spread wings. Another with jewelled crown surmounted by a kind of 'mortar-board'. In lowest row to L. a bull's head; others indistinguishable. Good block. Paper buff and perished. Part of border at top; otherwise ragged on all sides. 6½" × 2½".

K.K. II. 0274. b. Fr. of block-printed paper leaf, with Hsi-hsia text, showing upper and central rows of seated Buddha figures similar to K.K. II. 0238. b (Pl. LXV). All edges torn away and large piece from centre. Paper buff, thin but not woolly. 7¾" × 6".

K.K. II. 0274. c. Fr. of block-printed paper, with part of figure of court official (?) showing L. hand which holds white wand; grey blue robe with red bands. Well drawn and probably a block print hand-coloured. Background plain buff with part of black band to L. 6¾" × 1¼".

K.K. II. 0274. d. Fr. of paper, with block-print impression of part of subject perhaps similar to that of K.K. II. 0263. b (Pl. LXIII). In this case part of seated Buddha figure is present to R. in teaching or admonishing pose. The supplicating figure is kneeling on a lotus, and the edge of nimbus shows where it passes across shoulders.

The monk stands in background with clouds about him; three beams of light coming from top of nimbus of Buddha. No grotesque figures or animals appear.

In this picture solid black very freely used on borders to drapery, surfaces of pedestal, and lotus below kneeling figure. Paper buff, torn away at R. edge. 7" × 3½". Pl. LXIV.

K.K. ii. 0274. iii. Fr. of canvas, with traces of painted ornament in blue and brown. 3¼" × 1¼".

K.K. ii. 0274. jjj. Fr. of silk damask, dull yellow. Pattern obscure, but probably an all-over with trefoils above flattened rosettes. Torn at all edges and discoloured. 3⅜" × 2⅜".

K.K. ii. 0274. lll. Fr. of paper, originally screwed into a cord-like strip and then tied into tight knot. Completely covered with rough (Hsi-hsia ?) writing; perhaps a charm. Paper very thin and woolly. 5" × 7".

K.K. ii. 0275. Fr. of sketch on paper. A landscape seen from a height. Rugged boulders in foreground with trees growing from between them to R. and rising to top of picture. View is across a broad level valley with hills bordering its farther edge. Suggestion of space is well rendered. Very rapid and facile work. Torn away at R. side and tattered all over. Thin smooth paper, becoming fluffy in broken parts. 17¾" × 8¼".

K.K. ii. 0275. a. Fr. of drawing on paper. From drapery of flowing robe of which part seems to be draped over L. arm of figure. Torn away on all sides. Paper smooth, rather thin and buff. 7½" × 7".

K.K. ii. 0275. a. v–vi. Frs. of plain silk, very ragged. Av. c. 6" × 3".

K.K. ii. 0275. a. ix. Frs. of two block-printed paper leaves, with Hsi-hsia text very crudely ornamented with half-obliterated coloured Buddha figures similar to K.K. ii. 0270. aaa. Paper very woolly and ragged. c. 5" × 3".

K.K. ii. 0275. a. x. Fr. of paper with block-print impression showing standing figure ¾ to R. in the 'three-curved' pose. High coiffure and elongated nimbus. Horizontally striped loin-cloth. To R. an altar or pedestal, in front of which a large many-petalled lotus in bowl. Flowers and symbols on ground. Paper buff; ragged. 4" × 3".

K.K. ii. 0275. a. xv. Fr. of plain blue silk, mounted on paper and with paper strip bearing Hsi-hsia chars. pasted at top L. corner. Soiled and torn. 6¼" × 2¼".

K.K. ii. 0275. b. Fr. of drawing on paper; part of large drapery freely drawn showing an end with typical tubular folds. Paper thick, coarse and perishing. 15" × 5".

K.K. ii. 0275. c. Fr. of drawing on paper. A reclining female figure, with head to L. and feet to R., resting on R. elbow and head looking down ¾ to L. Dressed in loose flowing drapery, breast bare or in tight vest, and adorned with necklaces. On R. wrist two bangles. R. hand in elegant pose—wrist slightly bent, fingers lightly flexed, little finger extended; palm downward and turned slightly outward. Forearm rests against a bundle of something indistinguishable, in front of which is an object like one end of a miniature clothes-horse apparently attached to the bundle. Upper part of bundle appears to be a scroll-case with an ornamental end in the form of an enclosed palmette.

Whatever is below this has the appearance of drapery. L. arm, covered with many-folded drapery, seems to lie along the L. hip, the hand perhaps resting over knee; but all, from thighs, missing. Head narrow, long face with full cheeks, typically Chinese. Hair strained up from forehead surmounted by a snake-like roll or chignon with a band of jewels round its base. From band depend groups of jewelled tabs above ears. Tilaka between eyes, which are full and downcast.

Figure may be floating in the air, but no cloud scrolls are shown. A rather careless tracing from a fine original. Paper smooth, thin and yellow-brown. Torn. 13" × 9½". Pl. LVIII.

K.K. ii. 0275. d. Fr. of drawing on paper, in two pieces. A standing figure in official robes and head-dress occupies ¾ of length of fr. Figure, purely Chinese, is turned ¾ to R., holding in R. hand wand of office upright before his face. Head-dress shows flat band round forehead and another passing from first under chin. Soft cloth cap covers top of head, its high upper edge inclined backward. Robe, very voluminous, is V-shaped at neck, where it has a broad plain border. It hangs in great baggy folds from forearms almost to feet and is apparently caught up and rather constricted there, whence lower end falls in many folds to ground.

Under this garment there seems to be a loose rather wide-sleeved shirt showing loose folds about neck and wrists. In front of lower part of figure is mass of drapery probably belonging to another figure, most of which is torn away.

In remaining quarter of fr. and above first figure is another, turned at right angles. Most of this figure above waist is missing. It shows a man striding to R., wearing loose trousers, boots and voluminous robes reaching nearly to ankles. R. arm covered by loose sleeve and hand resting on what appears to be a bundle of something tied in a knot of his clothing.

The two sketches (or tracings) seem disconnected and are placed as they are to economize space on paper. Probably just notes or studies. Farther to L. and reversed in relation to second figure, the head and forearms of a male figure wearing an elaborate loose cloth head-dress tied round head with a narrow band, the head bowed in deferential pose and hands together pointing slightly down. Features blunt and brow rather overhanging. Arms covered by loose full sleeves.

Well drawn but very faint. Torn away at one long and one short edge, ragged on other long edge and tattered. Paper yellow, fairly smooth and thin and becoming woolly at bottom. 12" × 4¼". Pl. LX.

K.K. ii. 0275. e. Fr. of drawing on paper. Apparently part of architectural scheme: an altar (?). Two broad bands one above other, each with a narrow border at top and bottom, run horizontally the whole length of fr. To L. of centre of lower band, a grotesque dancing figure in black silhouette with arm outstretched holding scrolls of ornament or a rippling stole or cord. In second band lotus petals, repeating, suggest a Padmāsana.

To L. of centre a sort of niche rising higher than upper edge of top band and extending to lower border of lower band. In niche sits a smiling 'Kylin', the body turned to R. and head facing outward. Standing on head of Kylin, in crouching pose a Caryatid figure with R. arm upraised and L. on L. knee, supporting on head and R. hand a cornice of several mouldings. Above upper band to R. of centre, a vase with scroll-work indicated to R. and L.

Whole sketchy and pricked as a pounce. Paper rather thick and becoming woolly at torn upper edge. Cut askew at R. end; L. end torn away. 14½"×4". Pl. LX.

K.K. II. 0275. f. Fr. of drawing on paper. Bold floral ornament pricked for pouncing. Flowers seem to be peonies. Torn at all edges and tattered. Paper moderately stout and rather brittle, discoloured by age and darkened by black pouncing powder. 11"×8½".

K.K. II. 0275. g. Fr. of paper, with printed straight-lined labyrinth. Paper buff; ragged. 10"×6".

K.K. II. 0275. h. Fr. of drawing on paper. Rough sketch showing a plain viewed from a high rocky foreground. Trees grow from the rocks, and a group of trees is in middle distance; in far distance a forest (?). Torn away at R. edge. Paper buff, torn and tattered. 16½"×7½".

K.K. II. 0275. i. Fr. of paper, with drawings or tracings of two male figures, unconnected. One, an old bald-headed man with long overhanging eyebrows, seated ¾ to L., elbows down and forearms flexed, palms up. Long nails and muscular arms. Wears full robes open at chest; shoes and heavy earrings in elongated ear-lobes; R. p. shoulder bare.

Other figure, placed reverse way at opposite end of paper, shows head and shoulders only of a rather similar person facing ¾ to R. Face very finely drawn. Paper dark buff, stained; ragged. 12¾"×7". Pl. LIX.

K.K. II. 0275. j. Fr. of paper in two pieces, with drawing of part of kneeling or sitting figure. Both arms extended straight downwards with hands on ground, L. p. clenched; R. p. probably with fingers spread. Drapery voluminous, arms bare. Lower part of long straggling beard shows at top of fr.

Extremely good drawing, especially L. p. arm and fist. To R. appears sketch of another hand with long nails and enveloped in drapery above wrist. Paper buff, thin and very ragged. 3¾"×6¼".

K.K. II. 0275. k. Fr. of paper, with drawing of small piece of drapery. Probably part of K.K. II. 0275. j. Paper buff; ragged. 2¼"×2¼".

K.K. II. 0275. l. Fr. of paper, with drawing of head. Face rather long, eyes large, slanting and nearly closed. Small moustache; long ears; short, very stylized, closely curled hair shown in contour only with small Uṣṇīṣa in centre; Tilaka. Drawing poor and stiff. Paper buff; ragged. 4"×8¾".

K.K. II. 0275. m. Four frs. of paper, with rough sketches of parts of hands. Largest fr. has faint indications of more elaborate drawing almost invisible. Gr. fr. 5"×5".

K.K. II. 0275. n. Three frs. of paper, two of which join, showing faded sketches of a series of figures each within a petal-shaped halo. First (L.) faces to R., kneels on R. p. knee; the other knee raised with heel of L. p. foot resting on ground. It supports by both hands a large vase with short neck and a broad-lipped cover, held at level of head. Head-dress of cobras. No features drawn.

Second, which extends on to a second fr. of paper, is a female, facing R., kneeling on R. p. knee, L. knee raised and L. foot flat on ground. Body bends forward from hips and head thrown back. Prominent breasts. L. p. hand raised above head supporting small vase. On head seems to be a crown of spikes. R. p. hand raised but torn away. Face without features. Undulating bands float about figure.

The next figure perhaps joins up with the previous one. It is seated full face, the R. p. thigh resting on ground and lower leg tightly flexed. L. p. hand raised supporting large flower level with face. R. p. hand seems to be held at breast. Face missing.

Of the last figure only the R. p. half is present. It seems to be the centre figure towards which the others incline; it is full face with head inclined to R. p. and has nimbus. Appears to be seated on a lion with the soles of feet pressed flat on each other. R. p. hand in Vara-mudrā. Behind R. p. arm rises a wand with trident head issuing from a skull.

All the figures suggest Nepalese influence. One or two written characters scattered across paper may be Chinese.

On reverse of centre fr. is drawing of a large face, ¾ to L., with Tilaka and downcast eyes. Paper grey; ragged. H. of paper 3¼", combined length 9¼". Pl. LXI.

K.K. II. 0275. o. Two frs. of paper, with drawing of parts of large drapery. Between two of long sweeping lines of folds five Chinese (?) characters. Paper dark; ragged. Gr. fr. 15¼"×4¼".

K.K. II. 0275. p. Fr. of paper, with drawing of a mass of drapery, perhaps lower part of seated figure. A single character or device occurs on fold of drapery. Paper buff; ragged. 4¼"×7".

K.K. II. 0275. q. Several frs. of paper, one having impression of seated Buddha in Bhūmisparśa-mudrā; similar to K.K. II. 0293. a (Pl. LXV), but from different block. Edge of baluster ornament to L. of column of Hsi-hsia chars. and Padmāsana at bottom of page. Other frs. have Hsi-hsia text only. Paper buff, torn at L. edge; margin for pasting at R. 8"×1".

K.K. II. 0276. bbb. Fr. of paper stencil plate, cut through double thickness of thin soft paper previously used for writing. Pattern shows three motifs one above other. Lowest suggests balustrade set out in square panels, each panel perforated to leave in reserve a 'Union Jack' double cross. Next shows festoons of round holes with suggestion of rosette at points of suspension

from which hangs also a short straight row of dots (holes). In hollow of each loop of festoons is a large dot with crescent below. Top shows a row of three-stepped gradini. Remains of writing in Hsi-hsia character. Torn at both ends. 6" × 4".

K.K. II. 0276. c. Fr. of paper, with Hsi-hsia text in six columns with row of seated Buddhas across top similar to K.K. II. 0276. u. Paper buff, torn away at upper L. half. 7⅞" × 4⅞". Pl. LXV.

K.K. II. 0276. ccc. Fr. of paper, with Hsi-hsia printed text on one side and lower part of robe and L. p. foot of painted figure on other. Figure stands on white slab. Robe white with broad black borders. To left, two red borders of corner of mat. Much abraded. 2¼" × 2⅝".

K.K. II. 0276. ddd. i, ii. Two frs. of silk. One (*i*) corded with thin warp threads, displaced perhaps by wear, giving a sort of moiré appearance, and with a band of 'tabby'; the other (*ii*) plain. Both buff. (*i*) 5" × 2"; (*ii*) 11" × 2¼".

K.K. II. 0276. eee. i, ii. Two frs. of silk. One (*i*) blue twill with damask pattern of rows of elliptical six-petalled rosettes *c.* ⅜" long diameter; spaced *c.* $\frac{3}{16}$" apart in one direction and 1⅜" in other. In wider space are two rows of chequer hexagons. Rosettes and hexagons are arranged so that successive rows occur opposite spaces of the row before; i.e. the arrangement is *en échelon*. (*ii*) Finely woven plain cloth, light blue. (*i*) 8¼" × 3¾"; (*ii*) 5¼" × ⅞".

K.K. II. 0276. fff. Fr. of strong canvas, originally sewn into form of tube, now partly opened. 4¾" × 1⅜".

K.K. II. 0276. t, u. Two block-printed paper leaves, with Hsi-hsia text, decorated along top edge with row of seated Buddha figures. *t* shows three figures (three others torn away), all cut on one block, the Padmāsana being continuous under all.

Figures are long-bodied, with rather narrow waist, and wear tight-fitting single robe which leaves R. shoulder and arm bare. Feet resting on opposite thighs, soles up. Vesica rather angular with pair of inner lines more curved. Nimbus elongated and slightly flattened at top. In angle between nimbus and vesica a right-angled filling of double lines, looking like corners of a tall chair-back. Hair black, flat at top but with tall pointed Uṣṇīṣa. Different poses of hands; ears long.

Engraving and drawing crude but fairly proportioned. Paper buff and thin. Torn away at upper R. part. 7¾" × 4⅞".

u similar to *t*, but from different block. Torn away at upper R. half and large part of L. Four figures and part of fifth remain. 7" × 3¼".

K.K. II. 0276. v. Frs. of three block-printed paper leaves, forming part of a book of Hsi-hsia text, each leaf having a row of seated Buddha figures along top edge. Very crude. Top of head shown as a low black triangle, no limbs clearly defined; halo round body and elongated oval nimbus at head. Padmāsana, a band with oblique lines placed rope-wise to suggest petals. Face crude and features barely indicated. One leaf has four figures, the two end ones partly torn away. The other two have four figures more or less intact and two torn; lower part missing. Paper buff and rather soft. Two leaves, 5" × 4⅞". Third, 4¼" × 3½". Pl. LXV.

K.K. II. 0276. w. 2, ww. i. Frs. of paper, with impression of part of picture. To L. a kneeling female figure in flowing draperies close fitting above waist and long narrow stole. She wears bracelets and armlets and has hands together at breast. High but indistinct coiffure and plain circular nimbus.

To R. and farther in picture a kneeling male figure in large shawl, black bordered. Both hands at breast holding a narrow upright object (book ?), the upper end touching front of chin. Head-dress a sort of crown with tall feather-like sides. Plain nimbus. Above, a banana plant and grass.

Behind second fig. probably a third of which part of drapery and nimbus appears. At extreme top four conventional floral ornaments placed in row. A white streak across lower part (fault in printing or block). Probably part of K.K. II. 0284. a. xxvi. Paper buff; torn away at L. side. On back, five columns of Hsi-hsia printing. Gr. fr. (*w. 2*) 7" × 3⅜". Pl. LXIV.

K.K. II. 0277. iii. Miniature silk banner, with triangular top, side streamers and two short streamers hanging from centre piece. All made of printed white silk, doubled. Wooden straining piece in triangular top. Pattern a diaper, printed in brown-yellow; consists of equilateral triangular rosettes placed point to point, leaving hexagonal spaces enclosed by triangles. Centre of each space, circle and dot with short rays set round circle. Good condition. 8¾" × 5".

K.K. II. 0277. jjj. Fr. of paper, with part (nearly half) of jaws of monster. Mouth wide open; upper jaw wide, lower narrow. Painted red with five teeth visible in upper jaw and two in lower. Portions of face tinted pinkish grey and hair shown on upper and lower lips. Rough work. 3¾" × 1¼".

K.K. II. 0277. ttt. Strip of dull green silk, with edges doubled over as though for sewing. 14¾" × $\frac{7}{16}$".

K.K. II. 0279. uuu. i. Fr. of block-printed paper leaf, with part of haloed figure seated on lotus ¾ to R., one knee down and the other slightly raised but no feet visible. Tight-fitting robe leaving R. arm and shoulder bare; on L. shoulder a sort of Upavita. R. hand (damaged) near thigh; L. hand in Siṁhakarṇa pose. Broad face and wide mouth. To R. beginning of another figure. Detail between upper parts of haloes not clear. Tibetan style. Paper buff and brittle; torn on three sides. 3" × 1¼".

K.K. II. 0279. uuu. ii. Frs. of block-printed paper leaves (two, back to back), with Hsi-hsia text and ornamented with row of seated Buddha figures alternating with trees, from same block as K.K. II. 0239. a. This example shows part of two figs. on one side and of one on reverse.

Below each fig. a column of fine bold text and below each tree a column of floral ornament, the stems locking into ogee shapes which enclose nimbate figures, that to L. being probably a Biwa player. Well-designed, bold work. Paper buff, badly tattered and torn, very fragile and woolly. 9" × 5¼".

K.K. II. 0280. b. Fr. of block-printed paper leaf showing upper part of Paradise picture. To R. part of enthroned Bodhisattva (?) with rayed halo and nimbus in architectural niche. Two figs. on cloud adoring to L. Beside niche a Hsi-hsia label. To L. part of stone terrace with stone steps leading up to it, and a building with open doors and windows. Part of two figs. below and a tree in upper L. corner. Paper buff and torn on three sides. Cf. K.K. II. 0233. b, etc. 4" × 3½". Pl. LXII.

K.K. II. 0280. b. ii. Fr. of block-printed paper leaf with haloed Buddha figure surrounded by celestial attendants. Robe of Buddha banded with black; no visible Uṣṇīṣa; Svastika mark on breast. Halo has waving rays bordered by white spots on black band. A Lokapāla's head each side and another figure below each. In foreground to R. a shaven monk. To L. part of Chinese rail and beyond a large-leaved tree (plantain ?) and clouds. Clear impression. Paper buff and in fair condition; lower part torn away. 2¾" × 3⅝". Pl. LXIV.

K.K. II. 0280. b. ix–xiii. Five frs. of plain silk; various tones of buff. Gr. fr. (*b. ix*) 22½" × 2¼".

K.K. II. 0281. a. xxxviii. Fr. of block-printed paper leaf, double, with Hsi-hsia text decorated at top with row of three seated Buddha figures. The most perfect is the central fig., which is seated with legs in Svastikāsana pose, hands in Chin-mudrā pose. It seems to wear a single close-fitting robe leaving R. shoulder and arm bare. Face broad, long ears, black hair with tall narrow pointed Uṣṇīṣa. A tall spatulate nimbus rises from shoulders and a rather close halo emerges beside the arms and is decorated with scroll-work. Where this meets nimbus an angular projection occurs as in K.K. II. 0276. t.

On each side of nimbus, and perhaps seated on horizontal limb of angular projection, is a bird looking outwards from figure. Above birds one or two petal-like objects project from nimbus. The whole is enclosed in a frame of lotus-petal shape with point upward. Three narrow leaves attached to each side of upper curves of Maṇḍala furnish the spandrel. A vertical line on each side divides the composition from the repetitions on either side. The Padmāsana has one row of downward curving petals with tips turned up, and below these traces of further ornament.

To L. the same composition; but L. p. hand of fig. raised to level of shoulder, palm up. To R. the same but with R. p. hand at shoulder level, palm up, probably holding something. The R. and L. figs. have an end of drapery falling forward over L. p. shoulder. Paper buff, thin and becoming woolly at lower torn edge. Cf. K.K. II. 0253. b. 4" × 3¾". Pl. LXV.

K.K. II. 0282. b. ix. Frs. of diagram on paper. Chinese Yantra in form of wheel. Surrounding centre a fret pattern border. Between this and outer circle, space divided into many radiating panels in each of which are five characters, two side by side near fret border and three columnar. Very incomplete. Paper buff and soft. Gr. fr. 10" × 3".

K.K. II. 0282. b. x. Block-printed paper leaf with Hsi-hsia text precisely similar to K.K. II. 0233. vvv and possibly from the same block, but a cleaner impression. This supplies the missing characters of the other, and the small shrine below the L. half-column of text is complete. Paper dark, thick, and has five columns of Hsi-hsia writing on reverse. Torn. 7¾" × 3¼". Pl. LXV.

K.K. II. 0282. b. xi. Block-printed paper leaf with Hsi-hsia text, ornamented along top edge with row of five seated Buddha figures similar to K.K. II. 0292. i, but more carelessly engraved and the hair shown in solid black. Part of fig. to L. torn away. Paper buff, thin, woolly and torn. 7½" × 4¼".

K.K. II. 0282. b. xii. Fr. of block-printed paper leaf, with Hsi-hsia text, decorated at top with row of seated Buddhas and below columns of 'baluster' ornament similar to K.K. II. 0293. a (Pl. LXV). Paper torn and ragged, only part of two figs. and three 'balusters' remaining. 4" × 3¼".

K.K. II. 0282. b. xiii, xiii. a, xiv. Three frs. of silk. *b. xiii*, loosely woven plain blue. *b. xiii. a*, in two pieces, printed pale blue. Ground with diaper of reserved white rosettes and darker blue centres. *b. xiv*, same as b. xiii, but with paper stuck to one side with Hsi-hsia writing. Gr. fr. (*xiii*) 3¼" × 2⅜".

K.K. II. 0282. b. xv. Cardboard miniature cap, with pieces of paper stuck all over it to form rough border, intended to stand upright. Diam. of cap 2¼".

K.K. II. 0283. a. xviii. Fr. of paper, with block impression of part of same as K.K. II. 0260. v (Pl. LXIII), but more fragmentary. 3" × 2¼".

K.K. II. 0283. a. xix. Fr. of stiff paper, with traces of block-print ornament. Stained. 2¼" × 1¼".

K.K. II. 0283. a. xx. Fr. of paper, double, with block impression of lower L. corner of picture. To L. a standing figure, facing an altar or pedestal to R. Figure wears complicated costume which seems to include pyjamas tight at knees and ankles and several long stoles. Feet bare. Bands round waist. Upper part missing.

Altar curved (circular ?) and its surfaces decorated with scrolls and chevrons. On ground symbols consisting of groups of three balls, flames, trefoils and a curious object which may be intended for a Pōthī.

In border below, a Vajra and disc with two wavy lines running across it. Back leaf has three columns of printed Hsi-hsia text. Paper dark buff; ragged. 3½" × 3¼". Pl. LXIII.

K.K. II. 0283. a. xxi. Fr. of paper with block impression of upper part of Trimūrti figure, enthroned. Upright nimbus with flattened sides and top. Above head, seated

on lotus a small Dhyāni-buddha. Five arms are visible carrying symbols—two arrows, four-pointed Vajra, lily, bow, Akṣamālā. A plain halo with three border lines behind figure.

Whole enclosed in tri-lobed halo with wavy rays. Outside this, leaving a plain interval, an outer line from which spring outward-curling clouds or flames. Above a canopy in several tiers, topmost supporting a recumbent crescent holding a globe.

R. and L. at top are celestial maidens on clouds, bearing fruit. All below breast missing. Paper buff; torn away at L. as well as below. 3½" × 3". Pl. LXIV.

K.K. II. 0283. a. xxii. a, xxiii. Two frs. of paper; several layers matted together, painted pink. No pattern. The reverse shows Hsi-hsia characters. Gr. fr. (*a. xxii, a*) 5¾" × 3¾".

K.K. II. 0283. a. xxiv. Fr. of silk gauze. Rich ochre colour, very soft to touch. Woven with all-over floral pattern, not completely made out; but a six-petalled rosette and curving stem recur, with background of oblique lines. 8½" × ¾".

K.K. II. 0283. a. xxv. Fr. of silk, dark buff; plain weave. Very ragged. *c.* 5" × 3".

K.K. II. 0283. a. xxvi. Part of miniature silk banner, with triangular top in which is part of wooden strainer, parts of two side streamers and whole of centre. Triangular top and streamers are powdered with printed symbols in grey outline filled in light brown. Many of symbols occur on paper prints, one being the 'horn' resting on pearls, seen in K.K. II. 0260. v.

Centre is a strong damask in two tones of yellow, the pattern darker than the ground. The whole surface is set out in a square lattice by lines of pearls in two directions. In each square is an outlined square with re-entering angles and a centre pearl. 6" × 6".

K.K. II. 0283. a. xxvii. Fr. of coloured drawing on paper. A white horse with pink mane and tail standing in profile to L. Legs torn away. Fierce eye, blunt round nose, mouth open. Round, well-fleshed quarters. Paper buff, soft, torn above and below. 4" × 4½". Pl. VII.

K.K. II. 0284. a. Block-printed paper leaf, with seven separate Jātaka (?) subjects in two columns, three to R. and four to L. Each has two columns of descriptive (?) Hsi-hsia text. In L.-hand series text is placed alternately to R. and L. of each picture. In the R.-hand series text is always to R. Pictures crudely designed and cut; subjects await identification. Paper buff, soft, abraded and tattered. 6¾" × 3". Pl. LXIII.

K.K. II. 0284. a. xxiv. Two frs. of paper, with upper part of picture exactly similar to K.K. II. 0241. a (Pl. LXIII) but from a different block. The other fr. has four columns of printed Hsi-hsia text. Av. 2¾" × 2½".

K.K. II. 0284. a. xxv. Fr. of block-printed paper leaf, with Hsi-hsia text, decorated with row of seated Buddha figs. at top and 'baluster' ornament from same block as K.K. II. 0293. a (Pl. LXV). Three figs. and columns are present. Paper buff, torn away at upper L. corner and ragged at lower edge. 7½" × 3½".

K.K. II. 0284. a. xxvi. Fr. of paper, with impression of part of picture. To L. the L. p. half of enthroned figure in full robes, black-bordered and banded; body halo rather small with upward curving rays and double plain border. Plain nimbus. Head torn away. Throne base; a series of foliated steps with ornamental risers, the lowest resting on narrow downward-curving petals.

To R. a full-robed standing monk in black-bordered garment, hands folded, nimbus at head. Above throne a hollow-sided square baldachino with domed top and long wind-blown streamers tied in bows at corners. Above a few crude black scrolls. Across lower part a white streak (fault in block or in printing). Probably part of K.K. II. 0276. w. 2, ww. 1 (Pl. LXIV). 8½" × 1¾".

K.K. II. 0284. a. xxvii. Fr. of paper; several layers matted together, with part of large printed picture on one side showing arcs of circles and a kind of fringe ornament attached to a band; meaning not made out. Other side painted green with traces of red and yellow in thick tempera. Ragged and cracked. 5" × 3½".

K.K. II. 0284. a. xxviii. Three frs. of paper showing drawing. On one a figure seated on mat to R. from which two demons, nearly nude, with streaming hair and dog-like mouths, appear to be running away towards L. Below, the top of a tree.

Another fr. shows obelisk (?) or altar built of squared blocks with a panel of carving (?), showing two half-length figures. It seems to stand in a kind of trough, outside which is perhaps water.

A straight line divides this from a lower portion in which is a thunder demon surrounded by a circle of implements; to L. head of a figure with hands uplifted holding some object in L. p. hand.

The third fr. may be a continuation of 'obelisk' with an upright line, round which twines a snake or long narrow ribbon. All roughly sketched. Paper very flimsy and ragged. Gr. fr. 4½" × 5½". Pl. LXI.

K.K. II. 0284. a. xxxii. Fr. of silk muslin, printed with buff five-petalled rosettes on a blue ground. Ragged. 4" × 4".

K.K. II. 0284. b. Several frs. of paper, with parts of tracings or drawings. One shows Buddha head with elaborate head-dress, in front of which is a small Dhyāni-buddha. Another fr. has a R. p. foot and a festoon of jewels. Another shows top of bald head with waving drapery above. All very thin and ragged. Gr. fr. *c.* 4" × 8".

K.K. II. 0284. c. Fr. of paper, with drawing of centre of Neptune-like face inclined downwards. Paper buff; ragged. 3½" × 7½".

K.K. II. 0284. d. Fr. of paper with drawing of a bald-headed man in loose robe standing and leaning forward across an oblique tree trunk; chin rests on arm,

which is heavily draped and placed on trunk. Face inclined down, and being full face is foreshortened. A tracing from a clever original. Paper buff; ragged. 10" × 7½".

K.K. II. 0284. e. Fr. of paper, with drawing of seated figure on a lotus supported upon a pedestal. Only a small part of drapery of figure remains; this and lotus drawn in fine sweeping lines. Pedestal in feeble scratchy lines and probably by a different hand. Part of flame-bordered halo remains. Paper thin, buff; very ragged. c. 11" × 11".

K.K. II. 0284. f-k. Frs. of paper. *f, g, h*, parts of leaves with Hsi-hsia print and rows of Buddha figures similar to K.K. II. 0265. u; *i*, two leaves of Hsi-hsia text and rows of Buddha figures similar to K.K. II. 0233. uuu.; *j*, a leaf of Hsi-hsia MS.; *k*, leaf of MS. in cursive characters with interlineations in smaller hand of same. Several other frs. with traces of text and crude painting of a bold formal pattern. All discoloured and ragged. Size of leaves c. 7½" × 3½".

K.K. II. 0285. a. Fr. of block-printed paper. Portion to R. shows L. edge of boldly drawn rocky gorge (?), with very stylized trees and shrubs growing on the rocks and a torrent of water below. R. portion cut (?) away. L. part of paper shows three scattered lines of Hsi-hsia characters. Paper buff, torn but strong. 9½" × 3½".

K.K. II. 0285. b. i. Fr. of paper, with bold Hsi-hsia characters and traces of thick white and red tempera. Paper ragged. 3" × 4".

K.K. II. 0285. b. ii. Fr. of paper, with part of large pattern painted in blue green and pink. Paper ragged. 5¼" × 3½".

K.K. II. 0285. b. v. Block-printed paper leaf, with Hsi-hsia text and row of five Buddha figures at top similar to those of K.K. II. 0292. i, but much more crude and indistinctly printed. End figure to R. partly torn away. Usual characters top and bottom. Paper buff and becoming woolly at top. 7" × 3¼".

K.K. II. 0285. b. vi. Fr. of block-printed paper leaf arranged in four sections; upper L. quarter and lower R. quarter are filled with Hsi-hsia text and the other two by pictures. Top R. picture shows an old mendicant with high-crowned head on which are black dots, in full robe, walking with a long staff (cf. K.K. II. 0242. b). Clouds float around his head extending in irregular arc from his half-raised L. hand to top of staff.

To R. a small figure in robe and Chinese hat, with high back and pair of downward hanging tabs, walks away from R. front to L. and in passing turns his head to look at mendicant. In lower L. part of leaf (torn away) is slightly grotesque head with open mouth in profile to R. and some bottle-shape object behind (shrine ?), with a background of water (?) and low sloping headlands. Engraving careless. Paper buff and torn away at all sides. 5¼" × 2¾". Pl. LXIII.

K.K. II. 0285. b. vii. Fr. of paper leaf showing replica of aged mendicant on K.K. II. 0242. b. More of lower part of figure is present, but surface badly abraded and lines indistinct. 6" × 3".

K.K. II. 0285. b. viii. Fr. of paper leaf, with fine print of Buddha figure enthroned on pedestal without recognizable Padmāsana but a heap of drapery (which may be on rocks) instead. Figure sits with feet resting on opposite thighs, soles up (Svastikāsana). Hands and face torn away. Nimbus bordered with two or three lines. Body halo with black band on which are white pearls. Field of halo filled with wavy rays.

Immediately in foreground, sits worshipping figure on lotus, facing Buddha, so that full back view is presented outwards. Figure has nimbus and rayed halo. Circle of nimbus complete passing across shoulders. Body halo stops as usual at body and nimbus. Robes of figure are full and barred by vertical and horizontal bands (mendicant's robe ?).

R. and L. are two standing figures, nimbate, in full robes, high coiffure, hands in Añjali pose and each bare foot on small lotus. Whole of background, to scroll border in white on black, is rayed.

In top R. corner kneels celestial figure on finely drawn cloud, in full robes and with upright 'feather' head-dress and nimbus; seems to carry some offering. Clouds rise behind heads of standing figures. Whole is grandly designed, well drawn and engraved. Paper buff; ragged. 7¼" × 3¼". Pl. LXIV.

K.K. II. 0285. b. ix. Fr. of paper, in many pieces, showing print of extremely stylized mountain scene. Mass of peaks drawn in heavy black outline, with pines and rolling cumulus clouds. Here and there an inscr. label and a small figure occurs in silhouette, carrying two bundles on the ends of pole placed across R. shoulder. Below picture are columns of bold Hsi-hsia. Paper buff; ragged. Size approx. 9" × 5".

K.K. II. 0285. b. x. Fr. of paper, with block impression of seated Buddha figure ¾ to L., in flowing robe open at breast. Closely rayed nimbus and body halo. Tightly curled clouds on background out of which appear several well-drawn heads. Central figure has no Uṣṇīṣa.

Impression rather heavy and blotted and faded in parts of two small detached pieces. One shows head of a Bodhisattva with nimbus; the other a small border ornament. Paper dark; torn. Gr. fr. 3¼" × 4¼".

K.K. II. 0285. b. xi. l. Six frs. of paper, with impression from blocks. Three are part of same picture as K.K. II. 0260. v; 0283. a. xviii. One shows an extension to L., with clouds in foreground and kneeling figure on mat. Another is part of a standing figure in full black-bordered robes slightly bowing as he advances to L.; behind, another standing figure.

Third fr. shows foreground of clouds beyond which is rushing water and a shore in distance with coral-like shrub. Paper buff; ragged. Gr. fr. 2¾" × 2¼". Pl. LXIII.

K.K. ii. 0285. b. xii. Fr. of silk, plain buff; unevenly woven, giving effect of alternate bands of fine and coarser texture, perhaps not intentional. 4" × 3¾".

K.K. ii. 0285. b. xiii. Two frs. of silk, one blue of similar weave to K.K. ii. 0285. b. xii; the other dirty grey of coarser texture. Gr. fr. 2" × 3".

K.K. ii. 0292. i. Two block-printed paper leaves, with Hsi-hsia text. One leaf with row of four seated Buddha figures at top of each column of characters, each in a different pose. Figures rather long in body, large head, small legs. Head has pointed Uṣṇiṣa and narrow, straight-edged ear-like projection at each side of face reaching to shoulder. Drapery on body indicated by festoon-folds. Legs covered with drapery.

Padmāsana has two rows of petals, one growing upward and the other downward. Halo round body and nimbus to head. Lines radiate from nimbus to edge of rectangular line framing each figure. Poses from L. are first Dhyāna, second R. hand level with shoulder palm up and fingers pointing outwards, third Bhūmisparśa, fourth Dharma-cakra (?).

Work poor. Four columns of characters. Other leaf has six columns of characters. Paper buff; slightly torn but fairly strong. Larger page (without Buddhas) 6¾" × 4"; other 6¾" × 3". Pasted together with strengthening strip at back.

K.K. ii. 0293. a. Block-printed paper leaf, with Hsi-hsia text, decorated along top with row of six seated Buddha figs.; the six columns of text below separated from each other by 'baluster' ornament, a variation of K.K. ii. 0253. b. Base of each baluster is an inverted Triśūla, and immediately above it is a vase-shaped section; ball omitted.

Between the bases and forming a base to columns of text is a kind of Padmāsana of three petals with stylized seed-table above, showing four seeds on a black ground. Figs. are of same type as K.K. ii. 0281. a. xxxviii; but background of halo rayed and no bird on angular projection. Over R. shoulder of each fig. is a kind of Upavīta. Paper buff and well preserved. Separate strip forms extreme R. edge. 7¾" × 7¼". Pl. LXV.

K.K. ii. 0294. b–d. Three block-printed paper leaves, with Hsi-hsia text, each leaf decorated with same Buddha figures as K.K. ii. 0227. b (Pl. LXV). First two and last characters the same in every column. Paper buff, thin and becoming woolly and abraded. c. 7" × 3¾".

K.K. ii. 0294. e–h. Frs. of paper; several thicknesses matted together, painted roughly in tempera. Gr. fr. (e) 5" × 4".

K.K. ii. 0295. cc. Two paper leaves, with Hsi-hsia text, one page decorated along L. half of top edge with row of three seated Buddha figures. The figs. appear to be nude except for a kind of Upavīta passing over L. shoulder and under R. arm. Poses are from L. to R., Añjali, Bhūmasparśa and Dhyāna-mudrās.

Bodies and limbs well proportioned and legs of all figs. in Svastikāsana pose. Ears long, hair black and rising in high narrow point as Uṣṇiṣa. Halo nearly circular, nimbus upright oval; both plain. Each has separate well-drawn Padmāsana of two rows of petals, one growing upward and the other down.

Below each Padmāsana is a well-drawn palmette of three leaves; the centre one three-pointed, the side ones the same in profile, the tip curled down and voluted. The stem of each side leaf is carried down and with that adjacent to it forms an inverted closed palmette, enclosing a vertical Vajra which occurs opposite the interval between Padmāsanas. Above in space between adjacent haloes an inverted palmette. Background limited by straight edge along top and inverted palmettes below, black, with the various details of ornament reserved in 'white'. Good drawing and engraving. Paper buff. 6" × 3¾". Pl. LXV.

K.K. ii. 0297. bb. Fr. of paper, with impression from coarsely cut block of kneeling figure, ¾ to R., dressed in full robes and in Añjali pose. Label in front of head. Paper buff and ragged. 4" × 1¾".

K.K. ii. 0304. s. Fr. of silk, finely but unevenly woven, with printed spot pattern of finely designed three-toed dragon and flames. Pattern pear-shaped, about 5½" × 3¾". Silk discoloured to dark buff. Impressions of spot distinguishable, one complete, the others partly missing. Ragged. 8¾" × 10¾".

K.K. ii. 0304. t. Fr. of plain buff silk. 9¼" × 3¾".

K.K. ii. 0304. u, v. Two frs. of silk, both plain, *u* blue, 7¾" × 3"; *v* dull russet, ragged, 7¼" × 3¾".

K.K. ii. 0304. w, x. Two frs. of coarse canvas. Blue. Gr. fr. 17¾" × 4".

K.K. ii. 0304. y. Fr. of canvas, evenly woven; probably hemp. Painted on one side a fine blue with traces of outline in grey and further painting in pink and yellow. Probably part of banner. Very ragged and brittle. 7¾" × 9".

K.K. ii. 0304. z. Fr. of paper, with coarse painting. Two black lines crossing at right angles, and a patch of red in one angle. 2¾" × 2".

K.K. ii. 0313. a. Fr. of drawing on paper. To L. a muscular figure rides to R. on yak which turns its head ¾ to L. and expresses fear. Figure clad in thin tunic reaching nearly to knee and has bare leg and arm. L. fist grasps reins, R. arm missing.

A second figure on farther side of yak and slightly in advance rides horse with erect streaming mane and ears cocked forward. This figure has a tight-fitting embroidered tunic (or decorated leather armour), loose apron-like drapery round middle, long thin stole blown into large waving loops, loose trousers gartered below knee or tucked into lower leg covering; soft boot. L. hand grasps reins. R. arm curves outward from body, the hand placed lightly on R. thigh and holding a flower delicately between thumb and forefinger.

Body is turned to front while horse is in profile, as though figure were looking back towards rider on yak; but head is missing. Horse is galloping and has high-pommelled

saddle and broad saddle-cloth with plain border. On breast-band are bells (?). Easy grace of rider is in striking contrast with energetic action of horse.

The peculiar splay action of the yak is cleverly caught and contrasts with graceful movement of horse. The persons are riding through scrolls probably representing clouds.

Quality of drawing is strong and rapid; movement through the air expressed by agitated draperies even more than by attitude of animals. Upper and L. parts missing. R. edge torn. Paper moderately thick and opaque. 13" × 7½". Pl. LX.

K.K. II. 0313. b. Fr. of drawing on paper. Rapid sketch of rocky landscape with small figures. From about centre, running to R., a mass of vertical rocks. Farther to R. are more distant rocks rising from a valley through which runs a stream with a house on its bank.

In foreground to R. three seated figures, probably in boat. Tall rocks appear to L. and in foreground of valley; below is a figure perhaps wading in a stream and playing with a dog (?). In centre, a roughly drawn circle which may be the Sun or Moon. Gnarled trees appear in centre of foreground and another boat (?) to L. Large patches missing at L. and R. Paper smooth, very thin and buff. 15½" × 6". Pl. LXI.

K.K. II. 0313. c. Two frs. of one (?) sketch on paper. Very rapid and rough impression difficult to interpret. It seems to be a view of a level plain seen from a high rock (foreground), an old twisted tree rising to R. and extending its foliage to centre of top of picture. Riding across plain from R. to L. are two horsemen going at great speed and leaning forward over horses' necks as they urge the animals on. One rider has his R. arm upraised holding a stick (?), the other has his arms extended forward. They appear to be either racing or chasing. Speed and violent action of men and horses very vividly expressed by simplest possible lines.

The rest of drawing vague; but there is probably another horseman with lance over shoulder in R. foreground.

In centre appears to be a large house or temple with figures seated in and about it and with vertical rocks behind. To extreme L. are four or five Chinese characters. Portions missing. Paper smooth, very thin, buff and ragged. *c.* 17" × 9". Pl. LX.

K.K. II. 0313. d. Fr. of drawing on paper. A figure, ¾ to R., sits on flat rock with R. knee raised and supporting outstretched R. arm, the hand falling gracefully down in front of knee. L. lower leg lies flat on ground. Face youthful. Drapery loose, voluminous and wrapped about body in close rope-like folds stylized in treatment and very graceful. Rich necklace and armlet on R. arm; L. forearm not traceable. A plain disc (jewel?) occurs at centre of abdomen. Traces of bamboo above to L. Perhaps an Avalokiteśvara, but no halo visible. Paper dark, very thin, woolly and tattered. 12" × 8½". Pl. LXI.

K.K. II. 0313. e. Fr. of paper with drawing of Gaṇeśa, head wearing Nepalese or Tibetan cap. He has a small ring through L. p. ear and shows two short tusks close together on L. p. side of mouth. A flower in front of face. Paper buff; torn at all edges. 7½" × 6".

K.K. II. 0313. f. Fr. of paper, in many pieces with drawing of seated Bodhisattvas. Centre part only preserved. Figure faces R. Breast and R. p. arm bare, with bangles on wrist and narrow drapery over forearm, which is horizontal and seems to be resting on an arm-rest with voluted end. Long fingers with long nails held gracefully palm down. Streamers and jewels hang from coiffure. Additional jewels have been drawn on back of paper. Drapery well designed. Paper buff; ragged. 7¾" × 13½".

K.K. II. 0313. g. Fr. of paper, with three drawings, two of an old man's head, the other of nearly half-length of man. The first two may be studies for one head. An old man, bald on front of head, with long straggling hair farther back, has his head slightly bowed and ¾ to L. He seems to have fallen into a placid sleep, and the rendering of the face is very fine. His eyes are rather puffy, his eyebrows rather long and growing downwards in upper sketch but smoothed laterally in lower. Straggling moustache and beard. Fleshy angle to jaw. Ear pointed slightly at top.

At upper part of forehead a peculiar object looking like an inverted shallow bowl with a ball inside. There is nothing to show how it is supported, unless it be fastened to the hair, brought forward over top of head.

Third drawing shows head and bust of elderly man, bald in front but with long curling hair at back, leaning ¾ to R. with mouth wide open as though howling. Tongue visible with tip curling up behind lower lip. Ear slightly pointed. L. p. forearm lifted, the hand level with mouth and turned outward from body as though pointing or admonishing.

Drapery covers R. p. arm from a little below shoulder and passes across body and over crook of L. p. arm. Both shoulders, neck, breast, and L. p. forearm bare.

All three sketches very good. Paper buff; ragged, torn away on three sides. 5" × 11½". Pl. LIX.

K.K. II. 0313. h. Several paper scraps, showing frs. of ornament pricked for pouncing, generally unintelligible.

OBJECTS EXCAVATED AT STŪPA K.K. III, KHARA-KHOTO

K.K. III. 01. Frs. of silk muslin painted banner. Subject: on one fr. a well-drawn Nāga (?), ¾ to L., with R. arm upraised supporting Padmāsana (?) which seems to have a thick hairy stalk, and left hand with fingers spread, at left hip. He seems to be standing up to thighs in water, and is dressed in complete warrior costume with cobra (?) tiara. Colouring, faded, resembles that of Lokapālas in *Ser.* iv. Pl. LXXXIV. Size of this fr. 12¼" × 8¼".

Second fr. has almost entirely faded, but traces of drapery and red snakes can be made out, perhaps belonging to another Nāga. 9½" × 7".

K.K. III. 02. a, b, c, d. Frs. of plain, figured and painted silk. (*a*) Thick firm twill, figured; pattern obscured by dirt and wear. Colours prob. two shades of buff and blue. 7½" × 2¾". (*b*) Plain blue. 4" × 6". (*c*) Painted muslin; green edge, pink ground, fr. of pattern yellow outlined black. 3¼" × 1¾". (*d*) Painted, pink with pale grey outlines. 1¾" × 1¼". Frs. of paper sticking to most of the pieces.

K.K. III. 04. Frs. of painted silk banner. Two frs.: one with faint traces of drawing and colour, the other with three boldly written Chinese characters and part of a fourth. Very discoloured.

Piece of twig 5½" long, probably stiffener. Painted fr., 8" × 8"; inscribed fr., 4½" × 2¾".

K.K. III. 05. a, b. Frs. of silk painting, with debris of Chin. MSS. Larger fr. (*a*) shows L. bottom corner of painting with part of altar (?) on R. and small human fig. with hand raised in supplication below. To L. larger standing figs.—attendant (female?) holding dish of fruit and flowers; a fiery-haired demon dressed in red skirt and tiger's skin, in pose of violent rage, his feet far apart resting on pink lotuses; left hand raised above head, fingers directed down, like claws, and (above) Bodhisattva, standing.

Below, by R. edge, traces of fig. with outstretched arms riding black steed (?). Floral scroll-work, finely drawn in ink on green ground, round edge; colouring otherwise mainly crimson, blue and green. Faded and worn. 19½" × 11".

Other fr. (*b*) shows only folded legs of seated fig., coarse work. 9" × 9½".

K.K. III. 06. Frs. of buff kid or goat skin leather, sewn together and doubled over. Marks of sewing at edge. 3½" × 4".

K.K. III. 08. Painted silk muslin. Several frs. painted with green ground and yellow border, with design of which white and red patches with black outlines distinguishable. Very ragged. *c.* 7" × 7".

K.K. III. 09. Silk fr., faded blue or dark green. 3½" × 2".

K.K. III. 010. Painted silk muslin fr., with traces of black bands, and blue and red grounds. No details visible. Thin paper at back. 5¾" × 3¾".

K.K. III. 011. Painted paper fr., showing series of voluted petal shape scrolls in yellow, rising from red patch, with curved red band touching volutes. Outlines black; rich colour. 3¼" × 1¾".

K.K. III. 012. Silk fr., finely woven, plum colour, attached to buff muslin, and frs. of blue silk and paper. Discoloured and ragged. *C.* 4¼" × 3¼".

K.K. III. 013. Clay stucco mould of rectangular plaque, containing Buddha figure in Bhūmasparśa-mudrā. Face round, small featured and of pleasant expression. Hair treated in small seed-like projections arranged symmetrically. L. breast bare and well developed. Modelling good. 5¾" × 7". Pl. LV.

K.K. III. 015. cc. dd. Fr. of paper, in two pieces showing block impression of two seated Bodhisattvas ¾ to R. on Padmāsanas. Style Nepalese. One knee raised, the other and thigh flat on ground. Halo petal-shaped and filled with scrolls. Nimbus tall and plain. Head-dress tall and pointed. 'Chair-backs' show at angle of halo and nimbus. Long leaves fill in spandrel at same point, running behind 'chair-back'. Rosettes on background. Paper buff; ragged. 4" × 3¼".

K.K. III. 017. ll. Fr. of silk, buff, probably damask, with all-over pattern too ragged to make out. 7¼" × 3".

K.K. III. 017. jj. Fr. of silk, blue with paper adhering. 3¼" × 2¼".

K.K. III. 017. s. i, ii. Fr. of paper, in two pieces, with block impression of seated Bodhisattva on pedestal. Padmāsana suggested by very involved folds and turns of excessively voluminous drapery. Full face; eyes cast down; head-dress, three-tier tiara with jewels hanging from outward curving stem at temple; breast bare. Streamers and hair hang from head.

Halo and nimbus circular and plain. Swinging tassels above hang from canopy (torn away). Clouds and waving rays fill background. Hands at breast in Dharmacakra-mudrā. An object (torn away) in centre of lower part of pedestal from which proceed waving rays. Engraved in scratchy monotonous line. Paper ragged. 7¼" × 4". *ii*, small fr. showing top of nimbus and clouds. 2½" × 1¼".

K.K. III. 018. Frs. of silk from temple banners, with traces of paint. All ragged. Gr. fr. 15¾" × 7".

K.K. III. 020. mm. Fr. of silk, wrapped round stick of elliptical section. Silk in three strips sewn together and covered with discoloured paint on one side. Probably part of banner. Length of stick 6¾"; silk about 6" × 4".

K.K. III. 022. a.a. Several frs. of silk muslin, with traces of paint. Part of banner. Frs. of paper at back with block impression. Convolute *c.* 4¼" × 3".

K.K. III. 022. p, q. Frs. of paper, with drawing or Hsi-hsia chars. One shows drapery probably from lower half of figure; other coarse radiating lines. All ragged. Gr. fr. 4¾" × 3¾".

K.K. III. 023. h, i. Frs. of paper. (*h*) Rough drawing of figure (head, shoulders and one hand only remain), full face, with lines drawn from various parts and Hsi-hsia inscription at outer end of each line. Probably diagram giving names of parts. On head a small ornament resembling a Chinese ginger jar with circles drawn on it. All lower part missing. On back eleven columns of Hsi-hsia writing. 4¾" × 5½". (*i*) Small fr. with sketch of lower part of garment (?) painted yellow. On back, Hsi-hsia writing. 5¼" × 1¾".

K.K. III. 024. hh. Fr. of paper, with crude sketch on one side. Paper discoloured and woolly. 3¾" × 1¾".

K.K. III. 025. t. Many frs. of silk muslin, painted. Part of banner; only red and yellow halo recognizable. Gr. fr. 8¼" × 4¾".

K.K. III. 025. u. Leaf of paper, bearing block impression. It seems to have been folded into four and eaten through in various places by insects. All centre gone. This seems to have contained bell-shaped form resting on a Padmāsana and filled with Tibetan text.

There were at least ten seated Buddha figures down the sides. There are six widely spaced Tibetan characters along bottom below Padmāsana. Figures appear to be nude or in tight-fitting garment, the upper edge of which crosses breast from L. p. shoulder to R. p. armpit. Hands in Dhyāna-mudrā and feet in Svastikāsana. Paper buff; thin. 8" × 5½".

K.K. III. 026. c. Fr. of block-printed paper leaf, with very black and bold Chinese (?) text, decorated along top with row of seated Buddha figs. Parts of six figs. The most perfect shows fig. in ample robe seated on Padmāsana, with long pointed petals of rather confused design, over the centre of which fall festoon-folds of robe. Hands invisible, being tucked each in the opposite loose sleeve of robe. Heavy fold round neck. Face rather square, ears long, hair black with broad Uṣṇīṣa.

Double-bordered halo with rays from body to inner line. Approx. circular nimbus with rays on outside limited by an outer curve on each side in the case of fig. to R., and without rays in that of the second fig. to R., which also has no rays to halo. Drapery and faces different in each fig. and hands covered in all.

Below Padmāsana a three-tiered footstool (?) with pointed corner feet. A row of pendent tabs with pointed ends hangs from heavy line running across top of leaf. Engraving coarse. Paper buff and brittle; upper edge only intact. 6¾" × 4¼". Pl. LXV.

K.K. III. 026. d. Fr. of paper, with block impression of haloed worshipping figures of Nepalese type. Four heads, all looking to R., wholly or partly preserved. Rest torn away. Paper buff. 2¾" × 1⅞".

K.K. III. 026. e. Two frs. of silk muslin, with traces of paint. Part of banner. Gr. fr. 2" × 3½".

OBJECTS EXCAVATED AT SHRINE K.K. IV, KHARA-KHOTO

K.K. IV. 01, 07, 010–12, 017, 022, 025. Frs. of clay stucco drapery, red and green, edged gold. Gr. fr. 7¼" × 6".

K.K. IV. 02. Fr. of clay stucco orn.; double interlocking spiral, red. 4½" × 4¼". Pl. LV.

K.K. IV. 03. Clay stucco, half of 'butterfly' bow, painted red, similar to K.K. IV. 015. 2½" × 2".

K.K. IV. 04. Clay stucco pine cone, or artichoke in low relief. Gilded. 1¾" × 1½". Pl. LIII.

K.K. IV. 05. Fr. of clay stucco finger, painted white and gilded. Life-size. Same as K.K. I. 012. 2¼" × ¾".

K.K. IV. 06. Clay stucco almond-shaped ornament. Bowl or relic casket surrounded by flames, gilded. 2" × 1¼". Pl. LIII.

K.K. IV. 08. Fr. of clay stucco human ear, painted white and gilded; lobe missing. Clay non-fibrous. Badly modelled. 3¼" × 2¼".

K.K. IV. 09. Fr. of fresco, with red and buff border lines outlined black, and black line scroll. 2¼" × 2".

K.K. IV. 014. Fr. of clay stucco drapery in green, white (?) and gold. 5¾" × 2".

K.K. IV. 015. 023. Frs. of clay stucco. *023.* Drapery 'butterfly' bow, green, edged gold, lined red. Very naturalistic. 4¼" × 1⅞". *015.* Half of similar bow, all red. 2" × 2½". Pl. LIII.

K.K. IV. 016. Fr. of clay stucco ornamental detail in low relief, painted white and gilded. Ornament is an elliptical rosette, with faceted jewel centre encircled by mouldings, partly covered by flanking scrolls. Edges broken. 2¾" × 1¾". Pl. LIII.

K.K. IV. 018. Fr. of clay stucco bead ornament, painted white and gilded. 2¼" × ⅞".

K.K. IV. 019. Clay stucco eight-petalled rosette with domical sunflower centre. Gilded. Diam. 1¼". Pl. LIII.

K.K. IV. 020. Clay stucco peony in profile. Gilded. 1¾" × 1½".

K.K. IV. 021. Fresco fr. on mud plaster. Pattern indistinguishable. Colours red, pink and green. 2¼" × 2¼".

K.K. IV. 024. Fr. of clay stucco foot. Toes and portion of sole, painted white and gilded. Little toe missing. 3" × 2¼".

K.K. IV. 026. Fr. of clay stucco. R. half of bow in relief, as K.K. IV. 03, 015, 023, Pl. LIII, painted red. Gr. M. 2¾".

K.K. IV. 027. Fr. of clay stucco drapery as K.K. IV. 07; painted red with gilded edge, and green under-side to folds. Broken. Gr. M. (joined) 4".

K.K. IV. 028. Fr. of clay stucco orn., peony rising from pair of incurled volutes. Traces of red paint; broken. 3¼" × 3".

OBJECTS FOUND OR EXCAVATED AT STŪPA GROUP K.K. V, KHARA-KHOTO

K.K. V. 031, 032, 034, 049, 051, 052, 054, 087, 088. Clay votive tablets from similar moulds. Seated Buddha in trefoil halo on Padmāsana; in meditation. All other details similar to K.K. V. 033, &c. Diam. 2". Pl. LIII.

K.K. V. 033, 050, 053. Clay votive tablets (specimens from different ruined Stūpas at K.K. V) with device in relief. Buddha in trefoil halo on Padmāsana in Bhūmisparśa-mudrā; two shrines at each side, with Brāhmī chars. near each. Inscription in relief round edge. Well modelled. All from same original. Diam. 2".

K.K. v. b. 01. Fr. of silk; pale blue, with boldly painted lotus pattern in lighter body-colour. Very defaced. 11¼" × 4".

K.K. v. b. 06. bb. Fr. of silk, light blue. 5" × ⅞".

K.K. v. b. 011. r–t. Fr. of paper, in many pieces, showing two circles containing in each a lotus with stylized petals and various inscriptions in Tibetan. Yantra (?). Gr. fr. 7¼" × 3¼".

K.K. v. b. 013. r. Fr. of silk muslin, faded blue-grey. 6" × 3".

K.K. v. b. 015. ll, mm. Fr. of silk. (*ll*) light blue. 6¾" × ¾"; (*mm*) dark blue gauze. 5" × 2¾".

K.K. v. b. 019. Fr. of block-printed paper leaf, with Hsi-hsia text, ornamented with rows of Buddha figures, alternating with naturalistic trees similar in scheme to K.K. II. 0239. a, but of different design. One fig. and parts of halo and Padmāsana of next remaining. Compared with K.K. II. 0239. a, proportions of figs. are more correct, excepting hands, which are too large. Drapery is fuller. Halo has no outer border line. Padmāsana more of the chrysanthemum type and rests on three superimposed thin slabs.

Trees grow from lotuses; below each figure a double outlined trefoil arch above column of text. Border along top is a fine scroll in solid black on white. To R. of leaf is a panel containing two columns of text, above which is a naturalistic inverted lotus leaf as a canopy. Well engraved. Paper buff and torn away below figs. and on L. side. Cf. also K.K. II. 0279. uuu. ii. 7" × 5¼". Pl. LXV.

K.K. v. b. 020. Fr. of paper fretwork. Pattern is interlacing circles. Each circle invaded by four arcs of adjacent circles giving effect of concave-sided square in each circle. Within each square a four-petalled rosette with hole at centre. Paper buff, thick and torn at both ends; roughly cut. Width shows two complete circles. Probably intended for a stencil plate. 6" × 2¼".

K.K. v. b. 035. n. Paper card, with drawing representing a grotesque figure behind a large circle suggesting a shield. Head shows above shield and seems to be that of a boar looking to R., but nearly all lost from abrasion. R. p. arm raised grasping sword held horizontally behind head. Below shield appear two legs, bare below knees and with animal's skin above. Feet wide apart to agree with attacking pose of R. arm.

Between feet a two-line inscription. Within shield a smaller double-line circle. Between outer and inner circles an inscription; within smaller circle a triangle. An inscription in each segment. Triangle contains grotesque figure with large head and hands holding upturned feet. All inscriptions in Tibetan. Circles drawn with compasses furnished with pen or brush for ink. 4¼" × 2¾".

OBJECTS FOUND AT RUINED SITE, K.E., EAST OF KHARA-KHOTO

K.E. 01. Fr. of pottery, from rim and wall of small bowl. Buff paste with pattern in black or dark grey. Lip gracefully out-turned and wall curving well under towards foot (missing). Pattern, for a depth of about 1" from lip, a series of zigzag or scalloped bands, irregular and in groups of six or more fine lines, which extend through the body and show in same order on both sides. Each line is therefore one edge of an extremely thin lamina of the dark material.

Below bands of zigzags, a series of foiled rosettes with scrolled centre; in centre of bottom another similar rosette, all in groups of thin lines described. Judging by faults in pattern, and slight difference between the inner and outer patterns, complete control of the laminae was difficult.

The technique is very puzzling on account of the extent of control evidenced by the pattern. A fine greenish glaze covers the surface. For coarser example see A.K. 07. Chord of arc of rim 2¾" × height 1¼"; thickness ⅛". Pl. LVII.

K.E. 02. Glass bead; white, spherical, with large hole. ⅜" × $\frac{5}{16}$".

K.E. 014. Bronze disc; with shank at back. Roughly cast. Diam. 1".

K.E. 017. Fr. of iron knife-blade, with tapering tang. 2" × ½".

K.E. I. 01. Pottery jug, tall oviform, short narrow neck, trumpet mouth. Reeded band handle continuing line of broadest part of body and turning in in sharp curve to below outward curve of brim. Buff body from which all glaze has perished by erosion. Surface roughened and worn through at one side of neck and bottom.

Three parts of brim down to middle of neck missing on one side. Probably originally covered with brown glaze as T. XLIII. l. 015, which it rather resembles. Height 5¼", gr. breadth 3¾". Pl. LVII.

K.E. II. 01. Bottom of glazed porcelain bowl, with ring-base. Thick white body, covered each side with bluish-white glaze and decoration in blue. On bottom, inside, naturalistic design of phoenix and duck on water facing each other amongst growing lotus plants; on outside, part of band of alternate groups of vertical stripes, and pear-shaped figures with scalloped outline. Ware similar to T. XLIII. l. 06, &c., but thicker. Good work (Sung?). Diam. of base 2¾", h. (extant) 1$\frac{7}{32}$", gr. diam. (extant) 4¾". Pl. LVII.

K.E. III. 01, 02. Pottery whorls, pierced through centre. Larger 1⅝" × ½".

K.E. III. 03. Bronze 'cat' bell; loop broken and bell bent. 1⅜" diam.

K.E. III. 04. Fr. of bronze mirror, in several pieces. Within a raised border, a band of grape scroll in high relief. Cf. Bushell, *Chinese Art*, i. p. 88, Fig. 60, where Han mirror of kindred design is shown. Corroded. 3" × ⅜".

K.E. III. 05. Fr. of bronze; roughly melted. 1⅝" × 1$\frac{3}{16}$".

K.E. v. 01. Pottery whorl; Amalaka shape; buff body, glazed brown on upper part. ⅝" × 1¼".

K.E. v. 03. Stone axe-head, hard, grey; drilled as for haft, the blade thinning suddenly from horizontally flat broad butt. For other example, see K.K. 030, Pl. LXVI. 1⅝" × ⅞" × 7/16".

K.E. v. 04–10, 013–16, 018. Miscellaneous frs. of bronze and iron. Largest 1⅞" × 5/16".

K.E. v. 011. Fr. of pale green glass. ⅞" × ¾" × ⅛".

K.E. v. 012. Glass bead; translucent blue, spherical; chipped and broken (now joined). ⅜" × 5/16".

K.E. v. 013. Strip of bronze, corroded, with rivet-hole at each end. 1 13/16" × 7/16".

K.E. v. 015. Iron loop, made of rod doubled to form circular opening, the ends then forming straight stem. Rusted. Length 15/16", diam. of loop 7/16".

K.E. v. 016. Bronze strap-loop, perhaps for buckle, tongue lost. Roughly D-shaped, but with double opening; one long and narrow, by straight edge for attachment to strap, the other oval. Good condition. ⅞" × ¾".

K.E. v. 018. Scrap of plate bronze; corroded. Gr. M. ⅜".

K.E. v. 019. Fr. of pottery rod; black. ⅝" × 3/16".

K.E. v. 020. Part of wall and rim of large glazed pottery jar. Ovoid shape, with plain rim slightly out-turned and thickened. Body of light brownish colour; glaze each side chocolate-brown, scraped away on outside to form pattern in glaze on unglazed ground.

Design consists of band of egg and tongue orn. hanging from plain band of glaze round rim; inch-deep band of glaze round shoulder; and below nine-inch wreath of rather straight acanthus-like leaves with further signs of glaze below. Fr. does not extend to base. Top of rim unglazed. Good design and execution; prob. Sung. Fr. broken in two pieces, re-joined. For other examples, see K.E. xiv. 010 and K.E. x–xi. 01 (Pl. LVII). H. (of whole) 19¼", gr. width 12½", average thickness ⅜". Pl. LVI.

K.E. ix. 01. Iron (?) casting, roughly heart-shaped and plain with triangular shank at back. Very rough. 1¾" × 1⅛" × ⅜". Two small frs.

K.E. ix. 02–5. Frs. of bronze. *02.* Finger-ring of thin sheet with flat elliptical bezel, bent out of shape. *03–5.* Frs. of bronze wire.

K.E. x. 01. Pottery bowl; buff with buff glaze all over, excepting lower part outside. No overhanging lip. Ring-base, within which a single Chinese char. in black. Diameter 7⅝"; height 3". Cracked in several places. Pl. LVI.

K.E. x. 02. Fr. of glazed pottery jar; wall and rim, latter slightly thickened on outside, but not everted, flat on top and chamfered at inner edge. Body hard, buff with black granulations. Glaze each side, leaf-green, streaky in places. Top of rim unglazed, exterior and interior very faintly ribbed. Rivet-holes by edge, for ancient repair, not pierced through. Remains of metal rivet in one. H. 4⅞", width 5¾", thickness (average) 5/16".

K.E. x–xi. 01. Fr. of pottery; buff, with brown glaze inside and out. Outside ornamented with bold sgraffito leaf pattern scratched through glaze; this has been removed, leaving background of buff slightly stained and speckled with remains of brown glaze imperfectly cleaned off. For other examples, see K.E. xiv. 010, K.E. v. 020, and K.K. 0116 (Pl. LVI, LVII). 2⅝" × 1¾" × 3/16". Pl. LVII.

K.E. x–xi. 02. Fr. of pottery, from upper edge of bowl; buff, coated with dark brown glaze. 2¾" × 1¼" × 3/16". Pl. LI.

K.E. x–xi. 03. Fr. of pottery, from wall of vessel; red, thickly glazed rich sage-green. 2" × 1¼" × 3/16".

K.E. x–xi. 04. Fr. of pottery, from wall of vessel; buff, with remains of buff slip and glaze; conventional floral pattern (anemone?) boldly painted on outside in dark grey enamel. Glaze dulled by exposure. 2¾" × 1⅜" × ¼". Pl. LVII.

K.E. x–xi. 05. Fr. of pottery, similar to K.E. x–xi. 04, to which it probably belongs, with large rosette roughly painted in outline with dark grey enamel. Small hole drilled near one edge. Inside surface covered with spots in low relief. All glaze dulled by exposure. 2⅛" × 2¼" × ¼". Pl. LVII.

K.E. x–xi. 06. Fr. of stone axe-head (?). Small, dark grey, roughly triangular drilled through. Cf. K.E. v. 03. ⅞" × ¾" × 3/16".

K.E. x–xi. 07. Fr. of pottery, from wall of vessel; grey celadon ware with roughly incised pattern under thin translucent greenish glaze. 1¼" × 1" × 3/16". Pl. LVII.

K.E. x–xi. 08. Fr. of shell (?), in form of part of rim and wall of small bowl broken on three sides and remains of hole drilled near one edge. Raised band, ⅛" broad, formed by edges of laminae coming to surface just below 'rim'. Concavo-convex. 1⅛" × ½" × ⅛".

K.E. xi. 01–3. Pottery whorls, drilled through centre. Largest 1⅛" × ⅜".

K.E. xi. 04–15. Miscellaneous small frs. of bronze and iron.

K.E. xi. 016. Fr. of flint, pink. ⅞" × ⅝" × ⅜".

K.E. xii. 01, 02. Frs. of pottery. *01.* Disc of red pottery pierced as for whorl, but very thin; prob. worn by sand action. Diam. 1", thickness 3/16". *02.* Fr. of hard grey pottery with thin slip and thick grey-green glaze, spongy inside. ⅝" × ½" × 5/16".

K.E. xii. 03. Iron ring, much oxydized. Diam. ⅞".

K.E. xii. 04, 05. Frs. of bronze. Av. ½" × ⅜".

K.E. xiii. 01. Jade netsuki (?); white, pierced with two holes, which form part of design, for suspension. Design, a peony in profile with spreading petals flanked by two scrolled bifurcate leaves the downward curve of which form the two holes. Pattern is pierced right through,

but detail worked on one side only. Good work. 1⅜" × ⅜" × ⅛".

K.E. xiii. 02. Fr. of glazed pottery. Body hard, fine, buff; glaze inside brown; outside, cream-coloured, with roughly drawn spiral in dark brown surrounded by smaller spirals (brown over-glaze?). Gr. M. 1½", thickness $\frac{5}{16}$". Pl. LVII.

K.E. xiii. 03. Fr. of glazed stoneware. Hard grey body; glaze each side thin greenish-grey, with incised floral pattern and bands on outside roughly drawn. For another fr. of same, see K.E. x–xi. 07. Gr. M. 2", thickness ⅜". Pl. LVII.

K.E. xiii. 04. Fr. of glazed stoneware. Hard light buff body; glaze inside dark brown; outside, colourless glaze over cream slip and orn. in dark brown, showing floral pattern in outline, with background of small circles. For other examples, see A.K. 026, 8, Pl. LI. $1\frac{7}{16}$" × 1⅛" × ¼". Pl. LVII.

K.E. xiii. 05–10. Six pottery spinning-whorls, made of potsherds ground into disc and pierced. Red or grey. Roughly made. Gr. diam. (*08*) $1\frac{7}{16}$", thickness $\frac{5}{16}$".

K.E. xiii. 011. Fr. of black stone hone (?); flat, roughly triangular in outline with hole drilled through near apex; other end broken away. Length 1⅝", gr. width 1¼", gr. thickness ⅜".

K.E. xiii. 012. Half of glass bead; flattened spheroid, translucent honey-coloured. H. $\frac{3}{16}$", diam. ⅜".

K.E. xiii. 013. Iron knife-blade, single-edged, with remains of tang. Corroded. Length $2\frac{11}{16}$", gr. width ⅜".

K.E. xiii. 014. Rectang. bronze loop; one corner broken. $\frac{15}{16}$" × $\fr {13}{16}$", thickness ⅛".

K.E. xiii. 015. Bronze ring, small; corroded ends not quite joined. Diam. $\frac{9}{16}$".

K.E. xiv. 01. Fr. of cast iron, spearhead-shaped implement; hollow on one side and keeled on other. Point broken away. Rough work. 5" × 1¼" × ¾". Pl. LVI.

K.E. xiv. 02, 03, 06. Iron nails, two with broad flat heads. Longest 3¼".

K.E. xiv. 04. Fr. of glass bead, blue. ⅝" × ⅜".

K.E. xiv. 05. Fr. of bronze sheet; doubled over, showing rough ornament in punched dots, drilled with a hole at each end. One end narrows to a rounded point, other broken away. ⅞" × ⅜".

K.E. xiv. 07. Fr. of pottery antefixa (?), circular resembling box lid. Pattern floral (?), within a pearl border. Hard speckled brown body covered with fine brown glaze. Convex back of tile is broken away. Cf. Chiao. 01. 3¼" × 1⅞". Pl. LVII.

K.E. xiv. 08. Fr. of pottery, from wall of vessel; thick, coarse, reddish-buff; thinly glazed green-brown in and out. Ribbed inside. Outside S and U-shaped incisions, *semé*. 1⅞" × 1⅝" × ⅜". Pl. LI.

K.E. xiv. 09. Iron wall-hook or similar object, shouldered at commencement of curve. 2⅛" × 1".

K.E. xiv. 010. Fr. of pottery, from rim and wall of vessel; red body of fine quality, coated inside and out with dark grey-green glaze, in which on outside a bold floral pattern is reserved in sgraffito, outlines and ground being of the revealed red body. Upper edge of lip, uncoated. Rim thickened by kind of cyma moulding. Three rivet-holes. General character boldly decorative. For other examples, see K.E. v. 020; x–xi. 01; K.K. 0116, Pl. LVI, LVII. 3⅝" × 2⅛" × ⅜". Pl. LVII.

K.E. xiv. 011–15. Frs. of pottery. *011, 012.* From rim and wall of bowl. Grey body covered with grey slip (?) and finely mottled dark grey-green glaze shading to brown at rim, which is thinner than wall and rounded. Two thin brown lines carried round just below edge.

013. Red-buff body glazed as preceding, but leaving portion towards bottom (?) unglazed outside. *014.* Red body, grey-blue finely mottled glaze on both sides, with part outside left unglazed. *015.* Grey body. Glazed inside and out as preceding. For other examples, see K.K. 039–41, &c. Gr. fr. (*011*) $2\frac{3}{16}$" × 1⅜" × $\frac{5}{16}$".

K.E. xiv. 016. Fr. of pottery, from rim and wall of vessel. Light grey body, ribbed on outside, slightly thickened at lip, and glazed brown. 1¼" × 1" × ⅜".

K.E. xiv. 017. Fr. of pottery. Complete mouth of vessel in ware similar to K.E. xiv. 016. Lip prismatic. Glaze speckled and green in parts. Diam. 1⅜", height ⅝".

K.E. xiv. 018. Fr. of bronze binding, from strap end (?), with rivets in position. ⅝" × ⅜". Length of rivets $\frac{3}{16}$".

K.E. xiv. 019. Fr. of pottery, fine red, moulded, but pattern too fragmentary to make out; coated outside with fine glossy buff slip, over which remains of rich blue-green glaze, mostly flaked off. ⅞" × ⅝" × ¼".

K.E. xiv. 021–6. Frs. of glass beads, rather coarsely made; mostly straw colour; translucent. Gr. fr. (*023*, complete) ½" × ⅜".

K.E. xiv. 027. Fr. of pottery jar, with small loop handle from rim to shoulder. Body grey, hard; glazed each side and over top of rim, dark olive-green. Interior slightly ribbed. Bulging shoulder drawing in to short neck with slightly thickened rim. H. 4½", width 5¼", thickness ⅜". Pl. LVII.

K.E. xv. 01. Fr. of porcelain from upper edge of bowl; thin outward curved lip. Pale green glaze and pattern carefully painted in grey-blue. Outer surface, a border of four-petalled flowers in simple outline between parallel annular lines, under bend of lip. Below, running ornament of leaves, berries and flowers in silhouette.

Inner surface, a border on curve of lip consisting of alternate spirals on undulating stem with branching secondary spirals and bracts, between parallel annular lines. Faint ornament in low relief under glaze. Very fine quality. 1⅞" × 1¼" × *c.* $\frac{1}{16}$". Pl. LI.

K.E. xv. 02. Fr. of porcelain, from upper edge of bowl decorated with patterns in grey-blue. Lip very slightly outward curved. Grey-green glaze; over this, on outer surface, panels outlined with broad and thin lines, within which cloud scrolls (?). Inside, double line upper border; below, freely painted pointed petalled flowers and leaves, in silhouette. Upper edge unglazed. Rivet-hole near centre. Cf. K.K. 047 (Pl. LI). 1⅝" × 1⅜" × ⅛". Pl. LVII.

K.E. xv. 03, 06, 08–10. Miscellaneous scraps of bronze sheet and wire. Av. length c. ¾".

K.E. xv. 07. Bronze disc; six-lobed, pierced with square hole. Diam. ¾".

K.E. xvi. 01. Miniature silver (?) spoon or ladle; snuff-spoon (?). Round bowl, slightly curving handle. Well made. Length 1⅜", width of bowl 7/16".

K.E. xvii. 01. Iron ferrule, flattened, for knife handle. ¾" × ⅜" × 1/16".

K.E. xvii. 03, 08, 09. Bronze. *03.* Flat bronze ring. ⅝" diam. × 1/16" broad. *08.* Bronze nail ¾" × 3/16". *09.* Bronze band, concavo-convex. ⅝" × ¼".

K.E. xvii. 04. Fr. of pottery. Small curved spout of pale buff porcelainous ware, glazed pale grey-green. Hole c. ¼" diam. Length 1⅜", diam. at base ⅝".

K.E. xvii. 05. Carnelian bead; irregular shape. Diam. ¼".

K.E. xvii. 06. Fr. of glass bead. Half; pale grey-green, spherical. Diam. 7/16".

K.E. xvii. 07. Fr. of paste; rich turquoise-blue. ⅜" × ¼" × ⅛".

K.E. xx. 01. Fr. of glass bead. Half; pale grey-green. Diam. 7/16".

OBJECTS BROUGHT FROM SITE E.G., SOUTH OF SOKHO-NOR

E.G. 01. Printed paper. Deity seated on demon (?), with R. hand upraised holding flaming sword. Lotus head-dress; Padmāsana; rayed background. Roughly engraved and bad impression. Torn. 4⅞" × 4¼".

E.G. 02. Painting on canvas; a blue deity seated on Padmāsana, full face, head tilted slightly to R. p. High tiara, voluminous red pyjamas, short green vest with blue tabs at waist; R. hand on R. leg, L. hand raised to breast.

Blue nimbus; yellow halo rayed red with black dots between rays. Ground of halo blue with green flames outlined red. Background of upper corners blue with red roundel in each; background of lower part green. Outlines black and red. Rough Tibetan type. 4" × 4¼".

E.G. 03. Paper print. Boar-faced deity, embracing nude Śakti, standing on lion. Rope of skulls from waist. Outline only. Torn away on all sides. Reverse, printed label, Tibetan. 3¼" × 2¼".

E.G. 04. Printed paper. Oblong block. Vajrapāṇi enthroned on lotus resting on square platform supported by elephants R. and L. Bhūmisparśa-mudrā; Vajra in L. hand held vertically in front. Bowl of fruit in front; elaborate two-tiered head-dress; halo behind figure, and nimbus; floral background. Rough work of Tibetan type. 4⅛" × 5¼".

E.G. 05. Wooden food bowl, turned from solid piece. Flat foot, bellying sides, slightly recurved lip which is thickened. A bud between two bracts on short stem incised on bottom. Broken away in two places. Diam. 6". Height 2½". Pl. LXVI.

E.G. 06. Wooden box (shrine ?), cut from solid piece, with grooves for lid. Under-side rough, otherwise painted, prob. red, all over. Top treated as Chinese house roof, with curved sides and straight hip. Width 3"; height 4½"; depth 1¾". Pl. LXVI.

E.G. 07. Pottery patera forming antefixa; grey body; circular, with very fine three-toed flaming dragon and clouds in relief. Cf. K.K. I. i. 014. 4⅞" diam. Pl. L.

E.G. 08. Pottery fr. of dragon's head; grey; bulging eyes, short prominent nose, projecting frilled eyebrows, protruding upturned snout and teeth in jaw. Lower jaw missing. Prob. architectural; cf. K.K. I. i. 014. 8½" × 4" × 5". Pl. L.

E.G. 09. Pottery ornamental brick; hollow; grey; approx. square. On each face a double-rayed lotus in high relief with scroll stems proceeding right and left. Two sides closed and concave. Cf. Chiao. 08, 09 (Pl. L). 9¼" × 8¾" × 6¼". Size of hollow 6" × 5".

E.G. 010. Painted wood. Concavo-convex fr., painted on convex side with head of gold dragon outlined in raised gesso on red (lacquer ?) ground. Green cloud below dragon.

Edges plain, 1¾" wide; along each of them a row of dowel holes. One dowel hole with pin near centre; one near each extreme edge. Chamfered both ends. Similar to work still found in Leh. Reverse, 3 ll. Tib. writing. 8¼" × 3¼" × ¾". Pl. LXVI.

E.G. 011. Wooden frame, rectangular, one end segmental; back board pegged on (broken); edges of frame near front grooved for sliding front or lid. The whole covered with thin brown lacquer, excepting about ¾" of inside of frame adjoining back board, prob. the space occupied by edge of painted panel or other scheme forming the object protected. 5¾" × 3¼" × 1". Pl. LXVI.

E.G. 012. Wooden decorated board; oblong with pointed end slightly curved. A mystic design, printed on paper pasted to board, occupies whole of rect. surface; the pointed part painted black with hole near point for suspension.

Subject: a demon riding a grotesque animal, with looped stars (?) above. In upper portion, a double circle with mystic signs surrounding a square. To L. p. of circle,

a rectangle divided into squares each containing a symbol. Rev. plain and roughly cut, with small piece chipped out. Much defaced. 17½" × 6" × ½". Pl. LXVI.

E.G. 013. a. xxxi. Fr. of paper; upper part of large figure subject of which only haloes and tip of pointed Tibetan hat remain. To L. top of thin upright staff from which hang tassel and short streamers. Behind and above haloes a mass of flowers and foliage. In L. corner a sun; in R. a crescent moon. Paper buff, stained. 3⅝" × 9½".

E.G. 014. a. xviii. Fr. of block-print on paper. Very bad impression. Appears to be part of a border. Paper thin, laid. 3¼" × 2¼".

E.G. 014. a. xix. Fr. of woollen fabric, fine, loosely woven and fallen into rags. Pale grey. c. 9½" × 6".

E.G. 017. a. xliii. Two frs. of paper sketch, forming part of sheet with three lines Tib. writing on one side and roughly sketched Yantras on other. Paper double, brittle and torn or broken at all edges. 4¾" × 2¾".

E.G. 017. a. xliv. Fr. of paper, printed with double border line and part of flower. 3" × 2".

E.G. 017. a. xlv. Fr. of block-print on paper. Tib. script enclosed in rectangular border lines within which, above script, a series of contiguous petal-like brackets terminating at end in scroll. On reverse, Tib. inscription within rectangular frame. Paper thin, wove. Torn at edges. 6¾" × 3¾".

E.G. 018. m. Fr. of block-printed paper leaf. Two circular haloes side by side with small space between; enclosed in each a deity. That to L. rides on elephant. The deity to R. seems to be standing on a female figure lying supine. Mountains, trees and clouds form background to two haloes. Whole in red and very faint. Paper double and card-like. Torn at all edges. 10¾" × 4¾".

E.G. 018. n. Fr. of block-printed paper. Against a background of clouds and mountains is a warrior divinity playing the Biwa. Above and below, scroll borders. Ends missing. Paper treble, laid. 5¾" × 5¼".

E.G. 018. o. Block-printed paper leaf, in red. A deity seated on Padmâsana, enclosed in halo. Background, up to halo, clouds with rock (or ground) below. Figure has decorated head-dress with couch or Vajra central ornament. Four arms: R. p. upper holds rosary, lower in Vara-mudrā; upper L. p. holds mace (?), lower in front of body vase-shaped object. All rather faint and indistinct. Paper laid. 5¾" × 2¾".

E.G. 018. p. Fr. of paper sketch, with rough drawing of eight-armed Trimūrti deity seated on lotus. Halo and nimbus indicated. Hands carry various emblems. Very roughly sketched. Beginning of rough sketch of animal below. Above, three impressions of panels containing Tibetan inscriptions. Reverse, two faint impressions of seals in red, one in Chinese. Paper torn away nearly whole of L. side; laid. Rather soft. 13" × 6¾".

E.G. 018. q. Fr. of block-printed paper, tinted yellow on obverse. Within a fret border a standing beast to L. with off forefoot lifted. Feet have cloven hooves, body covered with scales, decorative tail uplifted in form of broad long-haired brush with small scrolls at base. Saw-tooth ridge along back. Long straight-haired ruff and mane on L. of head, which is probably regardant. Head vague and part missing. A symbol with waving ribbons in each lower corner. Paper laid and soft. Upper part torn away. 5" × 4½".

E.G. 018. r. + 023. a. xxiv. A sheet of block-printed paper in two frs., the R. end missing, showing two Tib. Yantras. Each is a series of concentric circles with radial divisions made by an undulating line lying between centre and outer border, the undulations making five outward and five inward loops.

Four legs of hog issue from below circle; crined back, tail and head appear on upper side. A line of Tib. script appears along top edge of paper. More than half of R. Yantra is torn away. Paper buff, thin, laid. 10" × 8".

E.G. 018. s. Sheet of block-printed paper, of circular Yantra in Tib. There are three concentric lines of script. At centre a vase from mouth of which issues fire. Snakes appear to support vase at each side. Round outer rim of Yantra a flame border. Paper thin, laid and in good condition. 13" × 9¼".

E.G. 018. t. Small sheet of paper, with roughly drawn geometrical forms. Corners of paper, which is oblong, are rounded like those of ordinary playing-cards. A single line border is drawn all round about ⅛" from edges. Within this are an equilateral triangle with a pair of concentric arcs cutting off each angle, the angular point being the centre of each pair. To R. of apex is a written symbol.

Below triangle, a long narrow rectangle running across narrow way of paper and parallel to base of triangle. Below, two double-line squares placed lozenge-wise, the lowest corner of the upper interlacing with highest corner of the lower. Below, a form like an H turned on its side with thick centre limb; probably representing an altar image base. To L. a few Tib. characters. Two pinholes equidistant from one long edge of paper seem to be old. Paper thick. 3¼" × 1¾".

E.G. 019. a. xviii. Fr. of silk, from painting; shows part of hind legs of horse on red ground with portion of blue beside it. Good work. 1" × 1¼".

E.G. 022. a. xxxii–xxxiv. Frs. of block-printed paper, stained yellow on one side. Crude. Tib. Yantra. Paper laid. Gr. fr. 5¼" × 1⅞".

E.G. 022. a. lviii, lix. Two frs. of block-printed paper. Enclosed in simple line border, probably an enshrined Buddhist figure of which part of elaborate Padmâsana and scroll enrichments at sides remain. Below, a line of Tibetan script. Paper thin, laid. Gr. fr. 5¼" × 3¼".

E.G. 022. a. lx, lxi. Two frs. of block-printed paper. *lx.* Within rectangular border lines a thin scrolling stem

terminating in elaborate growth of smaller outgrowing scrolls. Suspended by a ring to downward curve of stem is an elaborate tassel. To L. of tassel parts of characters. Torn at all sides. 3″ × 2¾″. *lxi*. A few scattered lines and half of radiant sun. Torn at all sides. Paper wove and thin. 4″ × 3⅛″.

E.G. 022. a. lxii–lxv. Four frs. of block-printed paper. *lxii* shows L. lower corner of rectangular panel. Within, part of circular halo surrounding a figure of which one R. p. hand appears grasping a rod (arrow or wand), and below part of Padmāsana and an end of drapery. Background between outer lines and halo, rocks, leaves and clouds. Lower edge of rectangular panel shows row of pearls on red ground, below which small quarries with oblique lines below. 1⅝″ × 1″.

lxiii. Larger fr. of similar scheme showing three or four L. p. arms of figure of which first above seems to grasp a bow. 2⅝″ × 2⅛″. *lxiv*. Fr. of top R. corner of similar scheme but with broad border of fine scroll-work. Background of field, clouds. Within halo one hand grasping axe. 2⅝″ × 1¼″. *lxv*. Rough impression from part of large seal. Cf. E.G. 018. m, o. Paper laid and rather brittle. 2″ × 1⅛″.

E.G. 023. a. xxi–xxiii. Three frs. of paper, with roughly written charms. *xxi* has on one side six lines of Tibetan writing divided by lines horizontally and vertically. On other side an irregular five-petalled flower with inscriptions on centre and petals. To L. part of these lines of writing. Paper thick, laid, torn away at one end. 2¼″ × 3⅝″.

xxii shows two circles and a part on each side. In centre of each a character in red outline and surrounding it Tibetan writing. Paper as above. 7¼″ × 3″.

xxiii. Three concentric circles, with flame border outside largest and eight petals between second and third. Tib. characters in centre, and petals between first and second circles. Paper appears to be modern. 4½″ × 3⅝″.

CHAPTER XIV

TO KAN-CHOU AND THE CENTRAL NAN-SHAN

SECTION I.—A DESERT ROUTE TOWARDS KAN-CHOU

Start for Kan-chou.

ON June 8th we were glad to be able to start from our camp below Dzusulun-tsakha on our journey south towards Kan-chou and the cool heights of the Nan-shan. The hiring of transport to take us as far as the Chinese high road from Su-chou to Kan-chou had been a lengthy and troublesome matter, in spite of the friendly attitude of the 'Beili' of the Torguts, a weak if well-meaning person; for no one would agree to work camels in the heat of the season. The Mongols were unwilling to supply even the minimum number of ponies and donkeys required to carry our limited baggage and supplies, except on condition that we should march at night only, and this in addition to exorbitant rates of hire. Such an arrangement, proposed rather truculently as a *conditio sine qua non*, would have rendered a journey by the reported route leading first south-east through sandy desert to Ghornan-gol and thence straight south to Kan-chou practically useless for survey work. I was moreover anxious to examine the ground east of the Etsin-gol opposite the point up to which we had previously succeeded in tracing the line of the Han Limes. So finally a compromise was arrived at by which we were to move up the Etsin-gol by night marches as far as the point just named and then proceed over previously unsurveyed ground to Kao-t'ai. As this ground was said to be hilly and cooler than the Etsin-gol valley our Mongols agreed to take us over it during daylight, marching in the early mornings and evenings.

Night marches to Atik-tsagan.

The first part of this programme was accomplished between the 8th and 15th of June by a succession of night marches rendered trying by the constant straying of pack animals, loss of loads, &c. Nor shall I easily forget the discomfort from the intense heat and frequent sand-storms that attended our weary halts in day-time (Fig. 237). The last of these marches had brought us past the ruined posts of Arun-tokhai and Tara-lingin previously described[1] to a narrow strip of vegetation, known as Atik-tsagan, on the right bank of the river (Map No. 45. A. 4). From there it was possible to see the last trees of the Mao-mei oasis on the same bank and also the tower T. XLVIII. b, which marks the point where the line of Limes abuts on the left bank of the river (Map No. 42. D. 4).

Watch-towers near Atik-tsagan.

A succession of five ruined watch-towers was found to stretch from near this spot north-eastwards to the vicinity of the small fort of Ulan-dürüljin. They occupy rising ground on the bare Sai of gravel which commands a complete view of the valley, and their position suggested that they formed a line of advanced posts intended to guard the approach to the Limes from the right bank. On visiting the southernmost of these towers, T. XLVIII. g, from Camp 159 I found its remains badly decayed; they were built of bricks measuring 14" × 8" × 6" with layers of reeds separating every three courses. The size of the bricks and the reed layers are constructive details corresponding to those observed in the Limes towers near Mao-mei and support the above suggestion. Such scanty broken pottery as was found near the decayed tower was of greyish colour, but offered no definite indication of date.

[1] See above, pp. 412 sq.

Search for continuation of Limes.

The search made there and farther south on that day failed to reveal any sign of the continuation of the Limes wall, such as is likely to have existed on the right bank of the river opposite T. XLVIII. b, its last traced point. The line of the Han wall might possibly have made a big bend so as to protect the northern end of the oasis, but there was no time for a prolonged investigation of the ground higher up the river as a halt was objected to by the Mongol guides and owners of our transport. The look-out we kept on our marches farther south also failed to reveal any indications of the Limes on the barren hills and plateaus that we passed. Thus the task of tracing its continuation to the east of the Etsin-gol had to be left to some future explorer. Considering the nature of the ground to be searched, he will need all the help that a cool season and adequate camel transport can offer.

Desert hills crossed to Kao-t'ai.

Another five marches, covering a total of over a hundred miles, brought us by Midsummer Day to the town of Kao-t'ai by the Kan-chou river. Of the route followed, hitherto unsurveyed, there is little for the non-geologist traveller to record, apart from the topographical details shown in Maps Nos. 42. D. 4; 45. A. 4; 46. A. 1, 2. It took us over four gradually rising hill ranges; the ascent of the first was over a bare glacis of gravel, and the next three were separated from each other by wide valleys where scattered patches of hardy scrub and tamarisk growth offered grazing for camels. Except in the southernmost range crossed between Camps 162 and 163, the rocks which compose these hill-chains rarely emerge from the masses of detritus that smother their sides (Fig. 259). Until the traveller reaches the northern slope of the range just mentioned, overlooking the Kan-chou river, water is to be found only in the single well of Ta-shan-kou (Map No. 45. A. 4) and the two scanty and distinctly brackish springs of Yüeh-kung-ch'üan and Zigda-kaya (Maps Nos. 42. D. 4; 46. A. 1). A few stunted Eleagnus (Jigda), clinging to the cliffs of granite which flank the latter spring (Fig. 260), were the only trees met with.

Descent to Kan-chou river.

It was clear that these wastes of decomposed rock, sand and gravel can receive but the scantiest rain or snow-fall. Such atmospheric moisture as may pass northward from the Nan-shan is probably almost all caught and precipitated on the higher range to the south, known to the Mongols as Köka-ula, which clearly shows the effects of water erosion on its barren slopes. This range, as Map No. 46 shows, is undoubtedly a continuation of the high and rugged chain that overlooks Kan-chou from the north and is itself a portion of the Ala-shan system. Whatever change this ground may have experienced through 'desiccation' during historical times, it is certain that the route leading across it could never have served, like that along the Etsin-gol, for the advance of a large invading host. But raids by small parties of nomads were easy enough here, and it was to give warning of these that the watch-towers were set up which we found crowning the last rocky knolls before passing through the crumbling line of the mediaeval 'Great Wall'. Immediately beyond we were greeted by the smiling green fields of the village of Lo-pa, which stretch down to the right bank of the Kan-chou river (Map No. 43. D. 2). It flowed at the time in a single deep channel about 80 yards wide, which we crossed by a ferry-boat; and after a mile's ride I found myself back at the eastern gate of the lively little town of Kao-t'ai, which I well remembered visiting in September, 1907.

Halt at Kao-t'ai.

In view of the fatigues undergone by men and beasts on the long hot journey, I was here obliged to make a two days' halt in the cool shady quarters which were once again hospitably offered me in a large temple outside the town gate (Fig. 264). My time was occupied in arranging for cart transport by which I might reach Kan-chou quickly by the high road, and also in a brief survey reconnaissance to the south. I ascertained from this that the barren foot of an outlying spur of the Richthofen range approaches here within five miles of the Kan-chou river, thus greatly reducing the width of the cultivable portion of the 'thalweg' that forms the great natural highway

from China towards the Su-lo-ho and the Tārīm basin. Information kindly given by Père Verberne, in charge of the Belgian Mission station at Kao-t'ai, concerning a ruined town known as *Lo-t'o-ch'êng* at a day's march distance westwards, induced me to let Lāl Singh proceed for a preliminary inspection of the site on June 23rd. To save time, I myself set out on the same day for Kan-chou, where I was to make arrangements for our proposed explorations in the Nan-shan.

Remains of *Lo-t'o-ch'êng.*

Lāl Singh, after having visited Lo-t'o-ch'êng and thence made his way back to Kao-t'ai, rejoined me at Kan-chou by the more devious but previously unmapped route along the right bank of the Kan-chou river. The report he was able to furnish of Lo-t'o-ch'êng was brief, but sufficed to show that its remains were in part comparatively recent and in no case of great archaeological interest. He had found the ruined town situated on the right bank of the wide deep-cut bed, then practically dry, in which the waters of the Pei-lang-ho and Hsi-ta-ho streams descend towards the Kan-chou river, when not absorbed by irrigation higher up (Map No. 43. D. 2). The sketch-plan prepared by the Surveyor showed a rectangular circumvallation measuring a little over a mile from east to west and about 1,430 yards from north to south. Its walls were of stamped clay and 10 feet thick. A cross-wall built at a distance of about 330 yards from the west face and parallel to it divided the interior into two unequal portions communicating by a gate in the middle. The outer west wall, built immediately above the steep right bank of the flood-bed, had for the most part fallen. At the corners and along the northern and southern faces rectangular bastions projected. Gates protected by small outworks led through the eastern and northern walls.

Indications of recent date of ruins.

The interior was completely devoid of structural remains, except in the south-eastern corner, where walls of less strength partitioned off a small enclosure about 210 yards square. Within this Lāl Singh found a well 80 feet deep and some half-ruined structures, perhaps intended to shelter wayfarers, who apparently make this a halting-place between the high road leading to Su-chou and the string of small oases stretching along the foot of the Nan-shan in the south. It was probably within or near this small enclosed area that Lāl Singh picked up the fourscore odd fragments of Chinese coins which he brought me. All of them have proved to be modern, the Nien-haos as far as legible ranging from A.D. 1644-62 to A.D. 1851-62. The pottery specimens brought back by Lāl Singh also had a modern appearance.

Alleged early occupation.

I regret nevertheless that the accident which I suffered three weeks later in the mountains prevented my visiting the site in person on my return journey towards Mao-mei, as I had originally intended; for the local tradition communicated to me at Kao-t'ai ascribed both this site and the remains of another walled town called Sou-san-wan, which Lāl Singh sighted among dunes about four miles off on the opposite side of the river-bed, to a 'Mongol ruler' of T'ang times. Whether archaeological evidence could be traced on the spot in support of this traditional dating must remain doubtful. But it would certainly be interesting to investigate how the neighbouring agricultural settlement, the existence of which Lāl Singh found attested by numerous ruined farms to the south-west and east of the town, had received its irrigation. Judging from what he saw in June and again when passing the place on his way down from the village of Nan-ch'üan in August, the river-bed adjoining the town site would not now carry water sufficient for the maintenance of regular irrigation on ground far down on the gravel glacis of the hills and fully nine miles from the limit of present cultivation. The change which must have taken place in the conditions here prevailing is evidently one suggesting 'desiccation', whatever its physical cause.

Journey to Kan-chou.

The two long marches which brought me on June 23rd and 24th from Kao-t'ai to the city of Kan-chou led along the great high road from Su-chou and took me over ground, mostly cultivated, which I had already seen in 1907.[1] The old site of *Hei-shui-kuo* (Map No. 46. B. 2), which was

[1] See *Desert Cathay*, ii. pp. 332, 335.

crossed before approaching the wide inundation bed of the Kan-chou river, has been fully described before.[3] This huge bed, close on four miles wide here, presented an appearance strikingly different from that seen at the close of August, 1907. Whereas then the summer floods made several of the channels quite unfordable for laden animals and covered most of the bed with water, leaving exposed only island-like strips of ground, none of the four or five channels now actually filled by the river were over 50 to 60 yards wide and none carried water more than 2 feet in depth. It was striking evidence of the lateness of the season at which the rapid melting of the glaciers and high snow-beds of the Central Nan-shan takes place, and explained at the same time the difficulties which in consequence beset cultivation where it is dependent on irrigation from the lower course of the river. If the northern ranges in this portion of the Nan-shan were assured of a more adequate rain and snow-fall during winter and spring, conditions would necessarily be very different.

Arrangements for Nan-shan surveys.

I was obliged to stay ten days at Kan-chou in order to make the necessary arrangements for the further surveys I had planned in the Central Nan-shan. My object was to extend the mapping which we had carried out in 1907 in the mountains near the sources of the Su-lo-ho and Su-chou rivers, by careful surveys of those high ranges and valleys farther to the south-east which contain the head-waters of the Kan-chou river. They were intended, in conjunction with our recent labours in the Etsin-gol region, to complete our topographical record of that large north-western portion of Kan-su which, inasmuch as it sends all its waters into drainageless basins, may well, in respect of its hydrography and general physical conditions, be attributed to Central Asia rather than to China. The need for hired transport and for some measure of local support and guidance involved dependence on the help of the Chinese authorities. I had already had experience of the reluctance shown by Chinese settlers in the submontane oases to venture far into those mountains, and of the official apprehension of danger from Hei-fan-tzŭ, i. e. Tangut robbers, &c.[4] I was therefore not surprised at the objections raised at the outset to my plans by the Kan-chou district officers, civil as well as military, and at the difficulties that I encountered in consequence in connexion with transport.

Stay at Kan-chou.

This official attitude was evidently prompted by the desire to avoid all responsibility for my safety, and considering the strength of the motive I should have had to be prepared for prolonged obstruction but for a piece of good fortune; for the reported approach of an old Chinese friend in the person of the worthy General Ch'ai Hung-shan 柴洪山, just then raised to the military command of Kan-chou as 'T'i-t'ai', gave hope of assistance. I well remembered all the kindness that this genial old soldier had shown me during my visits to Su-chou in 1907,[5] and my reliance on his help was not disappointed; for a stay of a few days after his arrival from Lan-chou-fu on July 2nd, made pleasant by repeated meetings with my old friend, sufficed to clear the way for our departure for the mountains. Meanwhile the peaceful retreat that I had again secured in my old quarters in the temple outside the south-western corner of the city walls (Fig. 267) had enabled me to dispose of much writing work, including accounts, *Serindia* proofs, &c. I was also able to make use of the facilities that this halt on a newly opened postal line offered for safe and comparatively rapid communication both with Europe and India. At the same time the kind help of the Belgian Mission head-quarters, established at Kan-chou under the Rev. Father Van Eecke, permitted me to gather useful information both about local conditions in the neighbouring cultivated tracts and about the route through the mountains towards Hsi-ning.

I have already recorded in *Serindia* such observations as my two stays at Kan-chou enabled

[3] Cf. *Serindia*, iii, pp. 1132 sq. In Map No. 46. B. 2 the name *Hei-shui-kuo* has been wrongly spelt as *Hei-shui-kou* by a draughtsman's error.

[4] Cf. *Desert Cathay*, ii, pp. 290 sq.

[5] See *ibid.*, ii, p. 288.



259. SAND-SMOTHERED RIDGE OF DESERT CHAIN, SOUTH OF CAMP 160.



260. CAMP AT ZIGDA-KAYA SPRING, ON ROUTE TO KAO-T'AI.



261. SITE OF MA-TI-SSŬ MONASTERY, SEEN ACROSS VALLEY.



262. NAN-SHAN RANGE AND VILLAGES AT ITS FOOT, LOOKING SOUTH OF NAN-KOU-CH'ÊNG.



263. TEMPLE COURT OUTSIDE HUNG-SHUI.



264. TEMPLE QUARTERS NEAR EAST GATE OF KAO-T'AI TOWN.



265. STREET IN NAN-KOU-CH'ÊNG.



266. VILLAGE SHRINES AT NAN-KOU-TAI-TZŬ



267. TEMPLE QUARTERS OUTSIDE CITY WALL OF KAN-CHOU.



268. STŪPA AND TEMPLE BEHIND SHRINE OF THE 'GREAT BUDDHA', KAN-CHOU.

me to make regarding the geographical advantages offered by its position in relation to the natural highway along the northern foot of the Nan-shan, and regarding the antiquity of the site occupied by the present city.[6] A renewed visit to the great Buddhist temple known as *Ta-fo-ssŭ*, with its colossal images of Buddha in Nirvāṇa, which are referred to by Marco Polo,[7] revealed no remains that could definitely be assigned to an early date, apart from some small stucco images stored on the upper floor of the shrine which by their superior modelling suggested attribution to Sung times. But in view of the tenacity of local worship, there seems no reason to doubt that the shrine of the 'Big Buddhas', together with the adjacent Stūpas (Fig. 268), occupies the same ground as when it was seen by Marco Polo and later travellers from the West.

Temple of 'Big Buddhas'.

Section II.—TO NAN-KOU-CH'ÊNG AND THE EASTERN HEAD-WATERS OF THE KAN-CHOU RIVER

Information received years before from my lamented friend Professor L. de Lóczy, the distinguished geologist and geographer, who had visited Kan-chou in 1879 as a member of Count Széchenyi's expedition, made me eager to visit the small town of Nan-kou-ch'êng and the cave-shrines of Ma-ti-ssŭ (Map No. 46. B. 3, 4), before moving into the mountains. It was easy to satisfy this wish as I found that we should have to follow at first the route leading across the mountains towards Hsi-ning, and that it was possible to approach Hung-shui (Map No. 46. B. 4), where our transport animals were to be supplied, by skirting the foot of the Richthofen range to the west of it via Nan-kou-ch'êng. In order to fix the position of the spot where the Kan-chou river debouches from the mountains I sent Lāl Singh on July 6th to Nan-kou-ch'êng by a more devious route leading first to the south-west, while I myself intended to reach the place by moving due south. This intention was, however, frustrated as the carts with our baggage were, by mistake, taken on ahead by the road leading straight south-eastwards to Hung-shui.

Start from Kan-chou.

This mistake, if it was one, was rectified after we had reached our first halting-place at Camp clxviii, in the midst of the wide gently sloping steppe which on this side divides the Kan-chou oasis from the belt of submontane cultivation. The march to the latter allowed me to realize even better than might otherwise have been possible that we had now reached a dividing line of distinct geographical interest. However flourishing cultivation might appear within the big Kan-chou oasis and however fine the tree-growth along its roads, it was everywhere dependent on irrigation. We had found the same in all the cultivated tracts visited, both on this occasion and previously in 1907, between Kan-chou and Su-chou, whether in the plain or along the foot of the mountains. A very striking difference now forced itself upon my attention as we ascended the steadily rising ground towards the south with the picturesque foot-hills of the Nan-shan coming ever nearer. After about eight miles' march from the lonely rest-house where our Camp clxviii had stood, the steppe of sand or fine gravel gave place to a belt of fertile loess soil, where abandoned fields were covered with abundant grass and flowers. When, three miles farther on, the edge of present cultivation was reached at the quaint walled village of Nan-kou-tai-tzŭ (Fig. 266), it was seen that its terraced fields were being cultivated without the aid of canals. Indeed the ground beyond was much cut up by dry ravines and flood-beds, which would have made the construction and maintenance of irrigation channels very difficult.

Change to belt of submontane cultivation.

It was the same wherever the winding cart-track took us. Whether we passed fields covered with the young green of growing crops or terraces abandoned to a luxuriant growth of grass and wild flowers strangely recalling a European country-side, everywhere it was obvious that rain and

Cultivation without irrigation.

[6] Cf. *Serindia*, iii. p. 1131 sq.

[7] See Yule, *Marco Polo*, i. pp. 219, 221.

snow-fall alone sufficed to give fertility to this rich loess soil. To eyes like ours which for a year past had but rarely seen cultivation and none without irrigation, the change in climatic conditions here revealed was most marked. To me it seemed appropriately to foreshadow our approach to the Pacific watershed which lay beyond the eastern head-waters of the Kan-chou river. Yet there was evidence that this submontane belt is but the outermost fringe of the region receiving the beneficent moisture from the ocean and that its rainfall is apt to prove precarious at times. For in all the villages farther down we found tanks where water from the stream beds could be stored for the use of men and beasts during seasonal periods when these beds run dry.

Old-world *Nan-kou-ch'êng.*

As we approached Nan-kou-ch'êng the view towards the mountains grew more and more beautiful. In front of the bold heights of the Richthofen range, snow-covered for a great part, there could be seen tiers of verdant foot-hills apparently terraced to their very crests, and below them villages nestling in dark groves (Fig. 262). With the bronze-green background of conifer forest on the higher slopes the whole landscape recalled scenes such as meet the eye along the foot of the Italian Alps. Nan-kou-ch'êng itself proved a very picturesque little town, fully in keeping with its delightful rural setting. Within its crumbling walls it seemed to have completely escaped the ravages of the Tungan rebellion. On the town gates and on the fronts of houses and temples lining the sleepy streets (Fig. 265) many examples were to be seen of old wood-carving of a fine type. The grass-covered roofs of temples, the rank vegetation in the courts of tumble-down petty Ya-mêns, the moss and creeper-clad town walls, all bore testimony to a genial climate and abundant moisture. Altogether the little town, with more than one pretty temple around it (Fig. 270), was a perfect picture of old-world China, far from these barbarian marches of the north-west.

Sculptures of *Ta-ssŭ-miao.*

During my short halt at Nan-kou-ch'êng I did not fail to visit its oldest temple, known as Lung-chiao-miao or Ta-ssŭ-miao, to which Professor de Lóczy had specially called my attention on account of its large images cast in bronze. The roof of the main structure, to the west of an outer court (Fig. 274), is decorated with very fine pottery relievos. The hall within contains a colossal seated Buddha image in clay (Fig. 275), flanked on its right by a standing Bodhisattva, also in stucco. This, with its excellent modelling and the richly painted ornamentation of the dress, &c., reminded me distinctly of old sculptural work that I had seen at the Caves of the Thousand Buddhas of Tun-huang. On either side of the alcove within which the Buddha statue is placed are seated five Arhats cast in bronze, over life-size. The original heads are unfortunately missing and replaced by very poor modern work in clay. Layers of gaudy paint cover the bodies, and the hands, too, are either overlaid with, or replaced by, modern stucco. Yet in spite of these disfiguring accretions enough of the original bronze is visible to attest its superior workmanship. Three more statues of seated Arhats in bronze, of similar size and modelling, are ranged on either side of an ante-chapel of the same shrine (Fig. 276). Local tradition ascribes great antiquity to these images, which certainly would deserve expert examination, if possible, after removal of their disfiguring additions. On a slab set up in an outer hall is a Chinese inscription, with lines in Tibetan and Mongolian script on its narrow sides; I regret not to have been able to secure impressions of it.

Approach to site of *Ma-ti-ssŭ.*

From Nan-kou-ch'êng I paid a day's visit to the sacred site of Ma-ti-ssŭ, which lies about six miles to the south-west, where a large valley descending from a big spur of the main range opens out towards the cultivated plateaus northward. The day was exceptionally clear, and this and the cool mountain air allowed me to enjoy to the full the remarkably fine scenery for which Professor de Lóczy's description of the site had prepared me. The route led past picturesque villages and large carefully terraced fields up towards swelling loess-clad ridges, outliers of the big spur above mentioned. Whatever ground on their slopes was not taken up by fields actually under cultivation bore a profusion of luxuriant vegetation and perfect carpets of flowers, including many alpine

plants that I had known in Kashmir. On ascending one of these ridges to a height of about 8,000 feet for a plane-table fixing, the valley of Ma-ti-ssŭ came into full view, flanked to the west by bold rock walls of sandstone (Fig. 261). Cropping out from the thick layers of loess that clothe the slopes elsewhere, these cliffs rose in places almost vertically and with their vivid red or yellow colour stood out in brilliant contrast to the rich green of the rest of the scene. The snow-filled ravines of the high spur to the south, and some snow-clad peaks of the main range clearly visible to the south-east, added their share to the glory of this panorama. As I turned my eyes from this feast of rich colours and the luxuriance of plant life in the foreground to where the dark range rising across the great plain of the Kan-chou valley limited the horizon northward, it seemed hard to believe that beyond it lay, so near comparatively, those barren wastes of sand and decomposed rock of southern Mongolia from which we had but recently escaped.

Abandoned fields on loess ridge.

Descending along the crest of the loess ridge we found it all laid out in fields, but most of these abandoned many years ago to luxuriant herbage. It was evidently a case of deficient labour, perhaps mainly a result of the depopulation which in these parts, too, had followed the Tungan rebellion. When lower down on the slope we came upon fields actually under oat crops it was interesting to note that the burly couple cultivating them were not Chinese but 'Hsi-fan' or Tangut, and that their 'farm' consisted of caves cut from the loess bank, exactly in the fashion typical of the great loess region of true China. We heard of more Hsi-fan cultivators established higher up in these valleys, clear evidence that this Tibetan race, though still mainly nomadic, is as capable now of settling down to agricultural life as it probably was in the days when kings of their stock held sway over most of the Kan-su marches.

Monastery of *Ma-ti-ssŭ*.

When, descending westwards, we had reached the Ma-ti-ssŭ valley and had crossed the lively stream that flows at its bottom, the full picturesqueness of the sacred site was revealed. A cluster of flat-roofed quarters, with small chapels of Tibetan type interspersed, composed the chief monastic establishment. It was sensibly established near the stream, and was conveniently placed, too, for the herds of yaks that play an important part in the domestic economy of the convent. When the dozens and dozens of red-robed Lamas who inhabit it turned out to greet us, there was no mistaking the fact that Ma-ti-ssŭ, as a sanctuary 'in being', bears aspects entirely Hsi-fan. On ascending to the largest of the shrines built on a terrace about a hundred feet higher up, we found that, though the structure itself with its splendour of polychrome woodwork and its roofs elaborately decorated in carved bricks and pottery was quite Chinese in style, the interior displayed all the paraphernalia of Tibetan Buddhist worship. The rock walls behind this shrine are less steep and exposed than those farther up to the north. Perhaps for this reason they hold, instead of cave-shrines, a series of colossal relievo representations of Stūpas placed within niches. Owing to the luxuriant tree growth at the foot and even in the fissures of the rock face it was difficult to get a near view of these relievos, of which nearly a score could be counted. In general type they recalled the structural Stūpas that I saw in 1907 at Ch'iao-tzŭ, which may well date like the ruined town near them from Hsi-hsia times.[1]

Upper temple below cave-shrines.

I had already seen from afar a series of cave-shrines honeycombing the wall of bare sandstone where it rises with an almost perpendicular face behind another conspicuous shrine built on the wooded slope about half a mile northward. Ascending this slope by a footpath leading through a beautiful forest, in which tall firs intermingled with leafy trees, we passed two decayed Stūpas of Tibetan type on a small wooded spur. From there a full view was obtained both of the upper temple and of the cave-shrines rising in a succession of stories behind it (Fig. 271). The temple comprised three halls rising one above the other on terraced courts (Fig. 269), all built in Chinese

[1] See *Serindia*, iii, p. 1104, Fig. 257.

style, with a profusion of fine wood-carving inside and rich decoration in terra-cotta on the roofs. The central and largest hall had a large wooden frieze running above the niches that contain the main images. Carved on this was a line of debased Brāhmī characters such as are often displayed by Tibetan sacred diagrams, wood-carvings, &c. The decayed condition of much of the graceful architectural wood-carving pointed to considerable age and accounted for the repairs which the uppermost hall was undergoing at the time. An inscribed stone stēlē outside the central shrine was said to name two Nien-haos of the Ming period as dates of reconstruction. From the copy supplied to me these have been read by Dr. Giles as corresponding to A.D. 1427 and 1565.

Cave-shrines of Ma-ti-ssŭ. The main group of cave-shrines occupies the rock face of yellow sandstone that rises wall-like from a level about 120 feet above the temple just described. These caves, all small, appear to have been originally carved out on a symmetrical plan in five stories, of which the three lowest each contain five rooms or chapels, and those above three and one chapels respectively. The caves of the lowest story have in front of them a kind of eaves carved along the whole length of the rock face. These lowest caves appear to have been converted into store-rooms and were found partially walled up and their doors locked. But under the exposed portions of the arches leading into them I found traces of fresco decoration in green and brown, reminiscent of painted work done at the caves of Ch'ien-fo-tung in Sung times. From the northernmost excavation a dark rock-cut gallery leads up to the five small cave-shrines of the second story. These all measure about 8 feet square inside and show much uniformity in their internal arrangement. They are faced outside by small porch-like ante-rooms which may once, as at Ch'ien-fo-tung, have communicated with an outside gallery of wood. Now the chapels are accessible only by small arched openings leading from one chapel into another.

Sculptures in chapels. Each chapel shows on the side facing the porch a trefoil-arched niche containing the image, in high relief and about life-size, of a Buddha seated on a Padmāsana (Fig. 273), either in the Bhūmisparśa or Dhyāna-mudrā pose. The top part of the niche displays a pair of elephants carved in low relief, raising their trunks over the head of the Buddha in a pose that is strikingly Indian in design. A broad horizontal band divides the elephants from a pair of animals standing rampant by the side of the Buddha and resembling dogs. The corner of the cella on either side of the niche is occupied by the statue of a Bodhisattva in stucco, slightly under life-size, richly dressed and bedecked with elaborate jewellery, all in a style strongly resembling that of the statuary of late T'ang or Sung times at Ch'ien-fo-tung.

Relievo decoration of cella walls. A peculiar feature of all these cellas on the second and third story is that the walls are decorated all over with small relief plaques of plaster displaying a seated Buddha. These are from a variety of moulds, which might well have been derived from T'ang times. A number of broken or fallen plaques were found deposited in the niches or at the feet of the attendant Bodhisattvas, and from these were secured the specimens described in the List below and reproduced in Pl. LXVII. As seen there, the Buddha is represented always seated on a Padmāsana, but with the hands in a variety of Mudrās. Of particular interest are the plaques 06–8 which show the seated Buddha under a pillared shrine of true Gandhāra style, surmounted by a relief of two deer facing each other and symbolizing the Sermon in the Deer Park of Benares. The Buddha figure and perhaps other details of these plaques may have originally been gilded. But as also in the case of the sculptures in the niches and corners of the cellas, all the surface of the stucco decoration has been thickly covered and darkened with soot deposited, probably during centuries, by fires lit in the cellas. That these were used as living quarters by monks down to quite recent times was proved by a cooking hearth, a Chinese *k'ang*, and the sleeping platforms that I found in several of them.

A steep turning staircase carved in the rock leads up to the third floor, where a row of similar



269. TEMPLE BELOW CAVE-SHRINES OF MA-TI-SSŬ MONASTERY



270. TEMPLE OUTSIDE NAN-KOU-CH'ÊNG.



271. CAVE-SHRINES AND TEMPLE AT MA-TI-SSŬ.



272. CORNER OF INTERIOR OF DOMED MUHAMMADAN TOMB, K.K. VI, KHARA-KHOTO.



273. STUCCO IMAGES OF BUDDHA AND BODHISATTVA IN CHAPEL OF SECOND STORY OF CAVE-SHRINES, MA-TI-SSŬ.



274. WEST COURT OF TA-SSŬ-MIAO TEMPLE, NAN-KOU-CH'ÊNG.



275. STUCCO IMAGES OF BUDDHA AND BODHISATTVA, FLANKED BY BRONZE STATUES OF SEATED ABBATS (RESTORED), IN TA-SSŬ-MIAO SHRINE, NAN-KOU-CH'ÊNG.



276. BRONZE STATUES OF ARHATS, LARGELY RESTORED WITH STUCCO, IN ANTECHAPEL OF TA-SSŬ-MIAO, NAN-KOU-CH'ÊNG.

small cellas opens on a narrow wooden gallery in front. From this another wooden gallery ascends to the fourth story containing only three small shrines all originally decorated in the same style, but poorly preserved. From one of them very steep rock-cut stairs lead up to the topmost shrine, which has been completely renovated with an image in Tibetan style and wall-paintings showing scenes from the apocryphal T'ang-sên's life. Another staircase leads to a cella 16½ feet square evidently added later, containing a miniature Stūpa quite in the style of a Chinese Pagoda, and on the walls a diaper of low relievo plaques recognizable as new by their inferior types. Near the foot of the main group of caves just described, both to the south and north, a few caves are to be seen irregularly disposed at different levels. In the largest of these, to the north of the entrance leading to the main group of the cave-shrines, a colossal Buddha figure is seated on a stone base roughly carved with relief figures of demons crouching as supporters. Other smaller caves may have been intended from the first as monastic quarters. Minor cellas.

Such inquiries as I was able to make through the ineffective channel of my hapless Ssŭ-yeh, here as elsewhere wholly indifferent to 'old things', failed to reveal the survival of any non-Tibetan manuscripts or prints among the Buddhist texts owned by the monastery. But it is possible that a search made with adequate leisure and help might yet produce a different result. For judging from the sculptural remains in the caves I feel strongly inclined to believe that the site was already occupied in Hsi-hsia times, and though the extant sacred structures, apart from the caves, cannot be older than the Ming epoch, yet the monastic establishment that accounts for them may well have enjoyed continuous existence from a much earlier period. In any case it is clear that the sanctity of the site is derived from its cave-shrines, and for the construction of these the striking natural feature presented by that imposing wall of sandstone offers a sufficient explanation. Early occupation of sacred site.

It only remains for me to mention that on my departure from the site, the heads of the monastic community, in return for the offering in silver made by me as a pilgrim, presented me with the fine carved wooden panel, 010, reproduced in Pl. LXVIII, which apparently had been removed some time before from the half-ruined hall of the upper temple that was undergoing reconstruction, and with a Tibetan painting on canvas, 011, representing a Buddha enthroned among Bodhisattvas and demonic divinities. Judging from its worn surface the painting appears to be of some age. The decorated panel, which retains traces of former colouring, probably dates from Ming times and is certainly a fine specimen of Chinese ornamental wood-carving. Carved panel and Tibetan painting.

On the evening of July 8th I was rejoined by Lāl Singh, who had determined the point where the Kan-chou river debouches from the mountains, and after passing south across the wide alluvial plain occupied by the most fertile portion of the Kan-chou oasis had skirted the foot of the hills towards Nan-kou-ch'êng. Sorry as I was to bid farewell to these attractive surroundings, I moved on with him on July 9th south-eastwards to the small town of Hung-shui, so that time might not be lost there over the arrangements for the hiring of the animals that we should need in the mountains. The way there, passable for carts, led all along through village lands which, if less fertile than the ground near Nan-kou-ch'êng, were yet equally independent of irrigation. The slopes of the foot-hills overlooking them were everywhere clothed with rich vegetation and higher up with thick forest. March to *Hung-shui*.

Our pleasant quarters in a spacious garden-girt temple outside Hung-shui (Fig. 263) and the glorious view of the verdant mountains afforded but scant compensation for the difficulties and consequent delay that we experienced here in securing the promised transport. The military commandant of the place, which like all the more important points on the direct route from Kan-chou to Hsi-ning is guarded by a small garrison, seemed anxious enough to comply with the orders which General Ch'ai, my old friend, had issued beforehand from Kan-chou. But the owners Delays about transport.

of ponies were frightened by the prospect of having to leave the *ta-lu*, 'the big road', and the distance from the new district head-quarters at Tung-lo-hsien (Map No. 46. c. 3) made it easy for the local headmen or 'Hsiang-yehs' to play their part in the game of obstruction. It needed continuous efforts during three days, coupled with whatever influence the military commandant, threatened with the displeasure of his 'T'i-t'ai', could exert, before the seventeen animals needed were collected. I had agreed to pay double the official rate of hire, and in order to lighten the loads I let Li Ssŭ-yeh and Naik Shamsuddīn return to Kan-chou with every man whom we could spare while we were in the mountains.

Start for mountains.

On July 13th we were at last able to start. Moving along the foot of a loess-covered spur which here marks the northernmost outlier of the Nan-shan, we passed the half-deserted walled town of Yung-k'ou, another small garrison place with a 'Hsieh-t'ai' or colonel in command. Notwithstanding the steadily increasing elevation, about 8,800 feet at Yung-k'ou, and the total absence of running water in any of the branching beds of the river which passes Yung-k'ou, all the land right up to the point where the river's main tributary stream debouches above the village of Chiao-mên-chiang-tzŭ was laid out in fields. Owing to want of labour and probably also of sufficient manure, much of the cultivable land is tilled only in alternate years.

Ascent to O-po pass.

The following day's march carried us from our camp at the outfall of the stream right up to the head of its valley and across the watershed which divides it from the eastern head-waters of the Kan-chou river due south. It was delightful to find myself again in true alpine scenery, ascending a verdant valley (Fig. 280) with meadows by the stream covered with carpets of flowers and all the slopes clothed with luxuriant forest. Above Pien-tung-k'ou, where the road passes through a 'chiusa' guarded by a small post, the valley narrows to a picturesque gorge by which the stream coming from the watershed has cut through a high outer range.[1] From this gorge the route emerges, near the decayed fort of Êrh-tao-kou, on to a wider portion of the valley (Fig. 279) where the two main feeders of the stream meet from the north-west and south-east respectively. Here we encountered the first camps of Tanguts grazing their large herds of yaks and flocks of sheep on the grassy expanse of wide downs. Snow bridges still covered in places the bed of the small stream, above which a gentle ascent led to the easy pass of O-po-ling-tzŭ, about 12,680 feet above sea-level, marking the watershed.

Head-waters of Kan-chou river.

From the pass the view lay quite open across the wide plateau that is the gathering-place of the head-waters of the O-po-ho, the eastern main feeder of the Kan-chou river, as seen in Fig. 278. The range bordering it to the south and south-east marked the watershed towards the Ta-t'ung-ho, a tributary of the Huang-ho, and thus towards the Pacific Ocean. The full view of this watershed and the thought that these mountains owed their abundant vegetation solely to the moisture carried from the ocean might well have made me forget the huge distance still separating us from it. But as we stood on the pass, there swept up the valley from the north a strong wind, carrying with it a dust-haze as if to remind me how close we were still to the great deserts of innermost Asia. If it is moisture derived from the ocean that produces the rich vegetation of these mountains, it is the

[1] Judging from the clinometrically determined heights on the range to the NW. and SE. of this gorge (Map No. 46. B, C. 4) as compared with those of the range farther south overlooking the O-po-ho, the eastern main feeder of the Kan-chou river, it appears possible that the true axis of the Richthofen range lies along the former range and not along the latter, though this represents the watershed.

The fact that the two ranges extend more or less parallel from peak 15690 (Map No. 46. B. 4) to the south-easternmost area reached by Lāl Singh, near the P'ing-hsiang-k'ou pass (No. 46. C. 5), suggests a change here in the morphology of the Richthofen range as compared with the portion stretching along the western head-waters of the Kan-chou river, where it forms a single chain with big spurs jutting out obliquely on the north side. A close survey of the as yet unexplored portion of the range (Map No. 46. A. 3, 4), where it is broken through by the Kan-chou river in a formidable gorge, may perhaps clear up this question.

fine dust carried up by the wind from the deserts that has clothed their slopes with their thick layers of fertile loess.

Highway from Tibetan marches.

But the openness of the great valley before us and the gentle slopes of the range bordering it on the south suggested thoughts in historical retrospect also. It was clear that Nature had created here a true highway, passable with ease for a great portion of the year, between the Tibetan marches of China and the oases along the northern foot of the Nan-shan. For cart traffic, such as the Chinese have always shown a civilized preference for, it has not been open in the past. But there can be little doubt that whenever Tibetan invasion reached Kan-su this direct and easy route from the Huang-ho and Hsi-ning must have played an important part in the campaigns that severed from China its Central-Asian dominions.

Halt at O-po.

Where the narrow nullah descending from the pass debouches into the open Pāmīr-like valley, lies the large but half-deserted fort of O-po (Fig. 278), at an elevation of about 11,500 feet. A small detachment placed in it is intended to guard the route from Hsi-ning against nomadic Tanguts and others who visit the high valleys around. The place looked doubly desolate under a rainy sky, and there would have been no reason for us to make a day's halt outside its ruinous walls had not the passive obstruction attempted by the majority of our Chinese pony-men, who refused to move away from the *ta-lu*, obliged me to secure the assistance of the commander of the fort. Fortunately he proved an intelligent native of Hu-nan, capable of making out my poor Chinese talk in the Hunanese variety of the Mandarin, which I had acquired from converse with Chiang Ssŭ-yeh, my devoted companion on my former journey. Convinced in the end that the route I proposed to follow up the western head-waters of the Kan-chou river and then down the Ta-t'ung river was not likely to expose us to attacks from dreaded 'Hei-fan-tzŭ' or Tibetan robbers, and himself to troubles in consequence, he managed to bring the recalcitrants to reason. A substantial advance of silver which I made on account of hire also helped in the process, and an intelligent petty officer was attached to my party to assure some measure of control farther on.

OBJECTS OBTAINED AT MA-TI-SSŬ SHRINES

Ma-ti-ssŭ. 01–9. Nine clay stucco relief plaques, oblong, showing seated Buddha or Bodhisattva. Originally painted dark red, but blackened by smoke. Surface worn and detail mostly unintelligible.

01 and *02* show a Bodhisattva in jewelled necklace, Dhōtī, and stole, sitting cross-legged on double lotus, with lotus-petal halo behind. No separate halo for head. Field of halo divided by horizontal band and filled with scroll work; three discs above, one behind head and one on each side. The latter pair, perhaps Sun and Moon fig., and halo background originally gilded, with horizontal band in green and perhaps other colours. Border red. R. hand on knee in Bhūmisparśa-mudrā; L. in lap, apparently holding stem Vajra or ambrosia vase. *01* has Chinese chars. below Padmāsana. 6" × 4¼".

03. Slightly smaller plaque showing similar fig.; detail somewhat clearer. 5" × (gr. width) 4¼".

04–8 are in Gandhāra style and show Buddha seated cross-legged on single Padmāsana supported by kneeling elephants under pillared and straight lintelled shrine. Latter apparently same in all, but best preserved in *04*, which shows lotus-petal base and capital of pillar on each side, double rectang. abacus above, and relief of two deer facing each other across flaming jewel (?) on top of straight crenelated roof at angles of which are birds. This relief prob. symbolizes the First Sermon in Deer Park at Benares.

Buddha has hands in meditation in *06–8*, but in *04* they are in Dharmacakra-mudrā, and in *05* R. hand is in Bhūmisparśa-mudrā and L. in lap. Remains of black and red paint over all. *04*, 6¼" × 4¼". 09 is fr. of smaller plaque of seated Buddha, with Padmāsana and lotus-petal halo as in 01–3. Hands in Dharmacakra-mudrā: surface much worn. Traces of Chin. chars. written below. 4¼" × 3¼". Pl. LXVII.

Ma-ti-ssŭ. 010. Carved wooden panel. Three boards of unequal width, 1" thick, are butted together and held by two battens at back about 1¼" thick and 2¼" wide, fastened by sliding into shallow dovetail groove, the edges of battens being cut to fit dovetail. To the board thus formed are applied a carved border of bold 'torus' section, an inner flat border, and in a row along middle board of panel four bosses carved with Chinese symbols.

Torus is mitred at corners and has slightly projecting continuous flat members on each side, by which it is fastened to board by wrought-iron nails. Flat inner border fastened by means of wooden dowel-pins. Bosses have chamfered border and are fastened to board by

means of iron nails. The whole is oblong, the short edges vertical.

Upper and lower borders are carved with a group of five (upper) and three (lower) mountain peaks as the central feature, the central peak supporting an uncarved boss or disc. R. and L. a sinuous snake-like, three-toed dragon with almond-shaped hairy tail, energetically striding away from centre; but neck and head recurved towards centre. Head was carved in separate piece and in each case is missing, the dowel only remaining. Body scaly.

Floral scroll-work of trefoil leaves in profile forms a background to dragons on a generally slightly lower plane. Vertical sides have five Chinese cloud scrolls with the edge of a kind of sunflower throwing out five long curving streamers. Background to clouds similar to that of dragons. Corners of torus have finely designed peonies in profile.

Whole carved in typical Chinese style such as used in lac-carving. The bold curve of contour of moulding conveys a fictitious impression of high relief in the carving. The work is pierced through and hollowed away at back in a semi-tubular form, similar to 'decorated' Gothic work.

Inner border about ⅝″ thick, flat, and carved with V-cuts into very accurate Chinese fret. One long side (top) only preserved. On fret are two crouching hares facing each other at a distance apart of ⅓ the length of border; carved in separate pieces, rather flat, and pegged on, each with three wooden pins. Corners masked by separately carved peony (one remaining) pegged on. The four circular bun-shaped bosses along centre are pierced like torus, and the Chinese chars. have background of clouds.

Traces of red paint in protected parts. Strips of wood with channelled front edge frame the whole on two sides. Well preserved. Size over all 3′ 6⅝″ × 2′ ⅞″. Breadth of torus 3½″, projection 1¾″. Width of inner border (fret) 1¾″. Diam. of bosses 4½″. Pl. LXVIII.

Ma-ti-ssŭ. 011. Rect. Tibetan canvas painting, bordered with black and brown striped silk. Wooden stiffener at each end.

Subject: Buddha enthroned, holding bowl, from which flames appear to proceed. R. and L. are standing attendants each carrying a similar bowl and a staff with loose rings and Vajra as insignia. The pillar on each side of Buddha is composed of an elephant, a lion, and a man in black top-boots wearing a mask. Above, cloud scroll of elaborate type, from which develops a dragon on each side, and a blue jewel. Immediately over centre of main fig., a flying Garuḍa-like creature.

Bodhisattvas and demons are lavishly distributed over general ground, with a background of blue sky and clouds. Poses of figures are dramatic and well drawn. Several types of head-dress are worn.

Two or three (?) Tibetan characters recur frequently on Āsanas, and haloes. On central Padmâsana, a character seems to have been written on each petal. Final painting has not followed original sketch, which has come through in places. All flesh is gilded except that of demons. 4′ 4″ × 2′ 5½″. Much worn on surface.

Section III.—RETURN FROM THE NAN-SHAN TO MAO-MEI

Proposed Nan-shan explorations.

On July 16th we were able to resume our journey. As planned by me, it was to take us first down the valley to the monastery known as Ta-ssŭ, at the entrance of the unexplored gorge through which the Kan-chou river breaks through the range northward, and thence up the main western branch of the river to its sources, which in 1907 we had been able to survey only from a considerable distance.[1] Thence I proposed to make our way to the head of the Ta-t'ung valley near the point where we had touched it on the former journey from the side of the Su-lo-ho sources.[2] After descending this valley to the east of the pass which connects it with O-po, I wished to cross the easternmost offshoots of the Richthofen range, as yet unsurveyed, down to Liang-chou. It was a programme which, having regard to the work to be done far away in the west during the autumn and winter, was practicable within the time available—provided that we could keep our reluctant transport in hand, as we had managed to do in spite of all difficulties during our previous explorations in this region.

Riding accident.

But Fate, adverse this time, had decided otherwise. As we marched down the wide open valley, for the most part in drizzling rain, there was little to distinguish our surroundings from the monotony of a Pāmīr, except for the rich growth of grass. Over the level ground of the valley bottom, about three miles across, Tangut herds and flocks, including hundreds of ponies, roamed everywhere. Accompanied by the two surveyors I had tramped on for fourteen miles by the track leading above the left bank of the O-po-ho, when we were brought up by a side stream swollen by the rain and

[1] See Map No. 43. B, C. 3; *Desert Cathay*, ii. pp. 309 sqq.

[2] See *ibid.*, ii. pp. 326 sq.

too deep to be crossed without mounting. There I met with a very serious riding accident which might well have put an end for ever to all my travelling. My Badakhshī stallion, my regular mount all the way from Kāshgar and ordinarily a quiet enough animal, probably excited by the many brood mares we had passed on the march, began to plunge as soon as I had mounted, reared suddenly, and overbalancing himself fell backwards upon me. Had it not been for the sodden condition of the turfy soil, the weight of the tall animal would probably have badly crushed me.

Injured leg.

Even so the result was serious enough. Apart from a series of bad bruises the muscles of my left thigh were severely injured, the chief one evidently torn. Walking at once became impossible, and the pain made even carriage on the linked arms of my two surveying companions impossible. The pony-men with the baggage had hurried ahead to seek shelter from the rain in some stone huts they expected to find farther down. After dragging myself along for some distance supported by the surveyors, I was obliged to lie down on the boggy ground without being able to reach a couple of Tangut felt tents within sight a few hundred yards off. Their occupants would not stir to give help; in fact, my two companions had some difficulty in keeping off the attacks of their fierce dogs. After three hours passed in this condition, the help summoned by a Turkī servant arrived at last from the camping-place far ahead. Transport in the camp-chair which the men brought was exceedingly slow and painful as the ground was cut up by several steep nullahs, and it was not until close on six hours after the accident that I reached the shelter of my tent.

Survey along Kan-chou river.

With my leg badly swollen and other injuries, any movement even on my camp-bed was for some days most difficult. But I soon diagnosed that my limbs had luckily escaped fracture or dislocation. So after a day or two employed by Lāl Singh on plane-table work in the vicinity, I was able to let him proceed down to Ta-ssŭ and thence up the main valley to the Kan-chou river head-waters. The result of his survey, as recorded in Maps Nos. 43, 46, shows that the river above Ta-ssŭ passes through a succession of narrow defiles formed by steep spurs which descend from the ranges on either side, both clad with permanent snow-beds and small glaciers. By six marches Lāl Singh reached a point at the wide open head of the valley, well to the north of the ground where our route of 1907 had crossed it (Map No. 43. c. 3), and was thence preparing to effect his passage to the head-waters of the Ta-t'ung river. But determined resistance on the part of all his Chinese frustrated his efforts, and to his great chagrin he was obliged to return to my camp as he had come, instead of gaining the Hsi-ning route and thence O-po.

Survey east of O-po.

I myself during the fortnight thus occupied had been unable to leave my camp-bed, or to use the crutches improvised by my men with wood brought from the fir forest a march lower down on the O-po river. But painfully slow as was the improvement in my severely injured thigh, I was by then able to make arrangements for further work ahead. The helpful commandant at O-po fort had managed on my behalf to intercept a party of Tungan muleteers returning from Hsi-ning, and with the efficient transport thus assured I was able to let Lāl Singh start for fresh surveys in the mountains to the east and north-east of O-po. They took him, as seen in Map No. 46. c, d 4, 5, around both the north and south flanks of a conspicuous snowy massif that seems to mark the point of junction of the two ranges distinguished above O-po, and then past forest-clad slopes to the watershed above the easternmost affluents of the Kan-chou river. Moving along these, he rejoined me at Kan-chou by the middle of August, having with his unfailing energy and zeal carried through as much of our original programme in the mountains as the altered circumstances would permit.

Return to Kan-chou.

By the first week of August I had sufficiently recovered from the accident to get myself carried down in an improvised pony litter to Kan-chou, my leg still feeling severely the strain from the torn muscles. During a ten days' halt there in my peaceful temple quarters I experienced much kindness from Fathers Van Eecke and De Smedt of the Belgian Mission and received the first

news of the great European conflagration. But for the telegraph line passing Kan-chou I should have escaped them much longer. During this refreshing stay I was able to make arrangements which permitted the indefatigable Lāl Singh to set out again westwards, after the briefest of halts, for fresh surveys in a portion of the Richthofen range that had not previously been mapped. They were to take him up the big valley debouching at Li-yüan above the point where we had seen it in 1907 (Map No. 46. A. 3), and thence along an unknown portion of the northern slopes of the main range to the head-waters of the Hsi-ta-ho descending west of Kao-t'ai (Map No. 43. D. 2, 3). In this way our survey of the whole mountain area drained by the Kan-chou river would be practically completed.

Journey along river below Kan-chou.

On August 22nd I myself set out from Kan-chou on the long-planned journey which was to take me across the desert ranges of the Pei-shan back to Turkestān for the work of the autumn and winter. In order to gain Mao-mei, the appointed rendezvous for my several parties, I chose the route leading along the right bank of the Kan-chou river which had previously been partially mapped by Lāl Singh. Most of the ground traversed by us on the eight long marches to Mao-mei was pleasant. But to me personally the journey proved somewhat exhausting, as the effort of doing it on horseback in which I rather unwisely persisted inflicted a severe strain on my leg. I had further reason to regret that the absence of boat traffic on the Kan-chou river did not allow us to do at least part of this journey by water and with the comfort that this means of progress during the flood might have offered. For the heavy rain experienced during the first few days had turned the track that our carts had to follow, within the belt of rich cultivation extending along the river down to Lo-pa (Map No. 43. D. 2), into an almost continuous stretch of bog. Farther down the brave Chinese mules and ponies harnessed to the carts experienced equal trouble from the ridges of dunes which in places, especially below the villages of Hsi-pa and Chêng-i (Map No. 43. D. 1), stretch from the barren hills eastwards right down to the river bank.

Remains of mediaeval 'Great Wall'.

The crumbling remains of the clay-built mediaeval 'Great Wall', a poor structure only eight feet thick, were first met with below the village of Ping-yu-pao. There it runs up a steep little spur on the low but in places rugged hill range that flanks the right bank of the river all the way down to Mao-mei. It perhaps had its continuation south-eastwards along the top of the hill chain, which watch-towers crown at intervals. Or it may be that the impassable character of the chain was deemed to afford sufficient protection, along the part extending towards the point east of Kan-chou where the late border wall was seen again (Map No. 46. B. 3). Farther down, this wall cropped up again in long stretches, usually along the edge of the present cultivation, as shown by the map; while elsewhere it had completely disappeared, and only the line of more or less decayed watch-towers remained to mark the direction along which it probably ran. This complete decay over long distances of the mediaeval 'Great Wall', which runs on to, and ends at, Chia-yü-kuan beyond Su-chou, helps us the more to appreciate the time-resisting solidity which the methods of construction employed by the engineers of Han times had assured to most parts of their Limes wall on ground offering far greater physical difficulties. On the other hand, it must not be overlooked that the less arid climatic conditions of the valley of the Kan-chou river down to the defile below Chêng-i, where the mediaeval wall comes to its end on the right bank, were not as favourable to its preservation as those of the ground farther west towards Su-chou.[3]

Temple of *Lai-lai-miao*.

Among other points along this route that deserve brief notice I may mention that, a short distance east of the village marked on the map as Sun-nai-pao,[4] we made a night's halt at a large and interesting temple. It is known as *Lai-lai-miao* (?) and is situated near high dunes. It seemed

[3] See above, p. 403; *Serindia*, iii. pp. 1121, 1133.

[4] The name taken from Lāl Singh's plane-table seems doubtful, its Chinese form having been recorded later at Kan-chou.

fairly old and the sand was invading all of its numerous courts and shrines. With its elaborate and graceful wooden pavilions, balustraded passages, and bridges connecting different shrines it recalled more closely the architecture of celestial mansions as represented in the Ch'ien-fo-tung paintings of the Western Paradise than any of the structures seen by me on Chinese ground. Its remains when completely abandoned to the drift-sand may provide an interesting 'site' for some future excavator a thousand years or more hence. It is evidently a cherished place of pilgrimage for the inhabitants of the flourishing walled villages by the river, and I regret not to have been able to secure an account of its origin and tradition.

Lāl Singh's survey south of Kao-t'ai

Below Lo-pa the line of continuous cultivation with its picturesque villages (Figs. 281, 282) comes to an end. Cultivation farther down is reduced to a succession of narrow patches between the high sands covering the foot of the barren low hills eastwards and the wide river-bed. A somewhat wider belt of cultivation was again reached at the large walled village of Hsiang-p'u, where to my great satisfaction I found Lāl Singh safely arrived after crossing the river. He had completely carried out his final task in the mountains south of Li-yüan and Kao-t'ai, having received a very friendly welcome at the camps of the Shera and Sarö Yögurs, small tribes of Mongol and Turkish-speaking nomads, who graze in those mountains.[5] By this additional effort my untiring companion had succeeded in extending the Nan-shan surveys carried out during this journey over an area quite as large as that mapped there in 1907.

Passage through 'Great Wall' at Chêng-i.

About ten miles below Hsiang-p'u lies the small oasis of Chêng-i, where bare rocky ridges approach the river valley on both sides and gradually narrow it to a gorge. A military post still maintained in the little walled town is a relic of the time when the passage through the mediaeval wall, rising immediately above the point where the river enters the gorge between steep cliffs about 300 feet high, was guarded as a true *kuan* or barrier. This character of the locality is marked also by small shrines occupying terraces on either side of the river. The defile (Fig. 277) in which the river has here cut its way through the barren hill chain extending all the way from above Kan-chou to beyond Su-chou is quite impassable when the river is in flood, and probably impracticable for traffic at other seasons also. The road towards Mao-mei crosses the bare rocky ridge to the east by a pass, about 400 feet higher up and away from the river, and then descends again towards the latter in a narrow tortuous valley. Where the river debouches from the defile and the spur to the east of it flattens out into a gravel fan, a huge ridge of dunes, probably 300 feet in height, stretches down from the north to the right bank. The road crosses it over two steep saddles of drift-sand, and here the hauling up of our carts was accomplished only with great labour and delayed us for hours. The whole route from below Chêng-i offers a succession of strong defensive positions, and rows of watch-towers both on and above the pass show that it was duly guarded. From Ta-tzŭ-wan, the first hamlet encountered on the north side, a long day's march, mostly over bare gravel or steppe and past straggling strips of cultivation by the river, finally brought us back on August 29th to our old temple quarters by Mao-mei. There to my relief I found the second surveyor safely returned with our camels from their summer grazing. In spite of the heat that they had experienced in the low hills beyond the terminal basin of the Etsin-gol, the camels were fit to face the hard work of the long desert journey before us.

[5] Regarding these interesting remnants of tribes, probably of Turk origin, transplanted from 'outside the wall' by the Chinese administration of the seventeenth century, cf. the remarks in *Serindia*, iii. p. 1129, based on an account by General C. G. E. Mannerheim, in the *Journal de la Société Finno-Ougrienne*, xxvii (1911).

CHAPTER XV

ACROSS THE PEI-SHAN TO BARKUL

Section I.—THROUGH THE DESERT RANGES OF THE PEI-SHAN

Programme for journey to Guchen and Turfān.

The journey for which I had chosen Mao-mei as our rendezvous and starting-point was intended to take us right across the great desert area occupied by the Pei-shan ranges where its width is greatest, in the direction from south-east to north-west. Following routes which the Russian Trans-frontier Map vaguely marked as derived from native information, I proposed to make my way to the eastern flank of the Karlik-tāgh, itself the easternmost extension of the T'ien-shan. Thence I intended to skirt the northern slopes of this great chain to beyond Ku-ch'êng-tzŭ or Guchen, from which point we could cross it to the Turfān depression, the ground chosen for our next archaeological labours. The execution of this programme would allow us in the first place to survey a large and practically unexplored portion of the Pei-shan, and next to see something of south-eastern Dzungaria, which by its geographical and historical connexion with the oases to the south of the T'ien-shan was of special interest to me.

Attempts to secure guidance through Pei-shan.

The extent of unsurveyed desert to be crossed to the nearest inhabited place north-east of the Karlik-tāgh was very great, and knowing the difficulties to be expected in connexion with water and grazing, I had already in May, on my first passage through Mao-mei and along the Etsin-gol, endeavoured to secure reliable information about the reported routes and guides acquainted with them. The result of these inquiries had been extremely meagre. The existence of routes occasionally followed by camel caravans towards Hāmi and to Bai, my particular objective, was known to some Chinese traders at Mao-mei. But the attempts to secure Mongols acquainted with them as guides had been unsuccessful. On my return I had to rest content with engaging two Chinese, labourers by profession, whom the young district magistrate, willing to help as before, had managed to produce. They stated that they had accompanied camel caravans proceeding by the direct routes to and from Barkul and Hāmi, and as they wished to return to those places for work, they were prepared to act as guides. Though the account they gave of their itineraries sounded rather vague, I was glad enough to accept their services; for I knew that previous map-work could assist us only at one point, the cross-roads of Ming-shui which they mentioned, the position of this being fixed in relation to the routes farther west visited by Russian travellers and by Professor Futterer.

Part of caravan detached.

In view of the length of the journey before us and of the total absence of resources on the way, careful arrangements had to be made for the supply of food for men and ponies. Fortunately these were facilitated by the good harvest which the adequate flood of the Kan-chou river had assured to Mao-mei that summer. In order to lighten our *impedimenta* as much as possible I decided to send off Li Ssŭ-yeh, accompanied by Naik Shamsuddīn and two Turkī followers, with spare baggage to Su-chou. Thence they were to proceed to An-hsi, and picking up there the cases of antiquities, &c., deposited under the care of the faithful Ibrāhīm Bēg, to move on by the Chinese 'high road' to Turfān, where we were to meet at the end of October.

Start from Mao-mei.

In order to enlarge the area mapped, the rest of us were to move, wherever possible, in two parties and by separate routes. An opportunity for thus proceeding offered at the outset, as our

Chinese *ta-lu-ti*, or 'men knowing the high road (*sic*)', spoke of two routes by which to reach the coal-pits of Mou-wo (Map No. 42. B. 3), some four or five marches ahead. But on September 2nd, the day of our start from our airy temple quarters outside Mao-mei, we had still to keep together; for the crossing of the flooded river to the west of the town proved very troublesome and took nearly half a day to accomplish. Though the summer flood had already greatly subsided, there was water still flowing over most of the bed, fully a mile wide. In its western portion it was so deep and the current so strong that the camels had to ford it unladen, and high carts had to be used for taking the loads across, as well as most of the men. We then separated, after a short night's rest at a temple near the western edge of cultivation on the left bank, Lāl Singh moving off for Mou-wo through the barren low hills north-westwards.

Return to Limes near Pei-ta-ho.

The alternative route which I was to follow with Muḥammad Yāqūb and Afrāz-gul proved in the end to be a track leading to Mou-wo from the extreme north of the far stretching Chin-t'a oasis. In order to reach it, our 'guide' took us along the foot of the low hillocks overlooking the left bank of the Pei-ta-ho, almost as dry now as when we had seen it in May. Thus our first march brought us back once more to the line of the Limes west of Mao-mei and allowed us to trace it for some distance beyond the point, near T. XLVI. a, where we had first struck it from the side of Chin-t'a (Map No. 42. C. 4). The line for about four miles west of this point could be followed quite clearly, in the form of an *agger* constructed of rough stones, a material supplied in abundance by the low decomposed rocky ridges on which the wall stood. In some places where large rough slabs had been used, this ancient border wall still rose to a height of 7 or 8 feet. Two completely decayed watch-towers, T. XLV. a, b, which we were able to examine before darkness came on, were found to be built of stamped clay, with thin layers of tamarisk brushwood interposed. Ancient pottery debris was picked up near them.

Last patch of cultivation below *Chin-t'a*.

The track by which our guide took us next morning passed through a belt of luxuriant scrub along the river-bed; it enabled us, however, as we proceeded, to see other mounds marking decayed watch-towers, T. XLV. c, d, e, on the line where the Limes *agger* skirted the foot of the low hills. I was unable to visit them; for increased pain in my left leg, the result of the severe strain to which I had subjected it by doing the long marches between Kan-chou and Mao-mei on horseback, had obliged me to abandon all attempts at riding and to try being carried, instead, on a kind of bed lashed to the back of a camel. This mode of progress necessarily tied me to the slowly moving baggage train, and soon proved so trying that I was glad in the end when the track taken by our timorous 'guide', instead of leading us, as I wished, to the north-west, where Mou-wo lay, brought us to the small outlying patch of cultivation of Chiu-hsi-tun belonging to Chin-t'a. It was the last chance available of securing wood for improvising a pony litter. There, through the kindness of a friendly villager who sacrificed some pieces of timber from his roofing, I managed by that evening to have a conveyance constructed which, in spite of frequent break-downs, carried me during the next two months, safely and in comparative comfort, across the Pei-shan and along the T'ien-shan.

Passage of last remains of Limes.

On the morning of September 5th we set out at last for the barren low hills to the north, our 'guide' having apparently reinforced his courage for the task by locally gathered information. After a march of about two miles across a bare flat of clay, partly wind-eroded, we reached the foot of a stony Sai and here passed for the last time through the line of the Han Limes. It took the form here of a low and badly decayed mound, with remains of two ruined towers, T. XLV. f, g, visible to the east and another about four miles off to the west. There could no longer be any doubt that the *agger* continued all the way across the waterless desert to where we had traced it among high dunes north of Ko-ta-ch'üan-tzŭ (Map No. 42. A. 4). Curiously enough those of the people of

Mao-mei and Chin-t'a who knew vaguely of the existence of this 'wall' were prepared to attribute to it, as I learnt, the respectable antiquity of Chin times (A.D. 265–419).

Start towards *Mou-wo.*

As soon as we had passed into the desolate region of barren foot-hills our 'guide' managed to lose the cart-track which was to lead us to Mou-wo and, once arrived on a wide gravel Sai beyond the outermost chain of hills, completely lost his bearings. It was but the first display of his and his fellow's lamentably inadequate recollection of the ground before us. Repeated again and again in the course of the next marches it soon taught us to trust mainly to the guidance of the faint caravan tracks traceable and to such knowledge as our plane-table gave us of the approximate direction to be followed towards our previously determined goal. On that first march after a great detour duly represented in the map, we managed to regain the cart-track. By it we were guided to the well of Yeh-ma-ching, 'the well of the wild horse', situated in a wide shallow valley ascending towards what evidently was a continuation of the hill range which we had sighted from Mao-mei trending away to the north-west. I am disposed to recognize in it a part of the southernmost main chain of the Pei-shan, corresponding to the last range which Professor Futterer coming from the north crossed on his way to the Su-lo-ho and which his account describes as the fifth.[1] The geological specimens that I secured on our passage through it may help hereafter to check the morphological relation suggested by a comparison of our map and Professor Futterer's route sketch. Like the other specimens collected along our route across the crumbling desert ranges farther on towards the Karlik-tāgh, they are still undergoing examination by Professor W. J. Sollas of Oxford.

Crossing of southernmost hill range.

On September 6th the track that we followed continued to ascend the valley to the north-west between rounded hills, all covered with dark detritus (Fig. 283). We passed two more wells, but on approaching what was manifestly the divide of the range, at an elevation of approximately 5,700 feet, we lost the track completely on ground that was much cut up by shallow drainage beds. Cairns visible on almost all the surrounding hillocks only helped to add to our 'guide's' confusion. In a well-defined line of reddish hills, however, that could be seen to the north stretching from east to west, he recognized the range along which, as he believed, led the direct route from Mao-mei to Mou-wo. He called it Chin-k'ou-tzŭ and talked of gold-pits once worked in it. In the valley about two miles wide into which we descended north-westwards there was plentiful grazing for the camels. But the well at which we halted proved dry, and those we sunk in the bed near by also failed to strike water. The straying of our camels and ponies during the night added to the discomfort of a halt passed without water or food. But by daybreak the camel-men in search of the fugitives came upon the track of Lāl Singh's party beyond the low hills to the north. The trace left by his cyclometer rendered it unmistakable. On descending to it we passed a well only five feet deep holding ample water. Then the old cart-track which Lāl Singh had followed took us westwards along the foot of reddish hills across a low saddle to a valley draining westwards to the open basin of Mou-wo (Map No. 42. B. 3).

Coal-pits of *Mou-wo.*

There we found Lāl Singh duly encamped by the side of one of the two wells dug in the dry bed passing below the coal-pits. Two or three houses half in ruins marked the quarters of the people from Chin-t'a and Mao-mei who until recent years used to come here for short periods in the winter to gather coal from the shallow diggings. Of this coal specimens were secured. A hillock overlooking the dreary plain is crowned with a little shrine. The pits extend irregularly for about a mile to the west of the stream-bed and seem to be worked to a depth of 15 to 17 feet from the surface, in narrow ditches. The information obtained from Lāl Singh showed that the route over which he had reached Mao-mei led by a long march on the first day over waterless Sai to a rain-fed

[1] See Futterer, *Wüste Gobi*, p. 22.

pool below the easternmost buttress of the range that we had crossed from the south, and thence, as the map shows (No. 42. B, C. 3), along the northern slopes of the same. At the spring of Chi-chi-ch'üan, at the foot of the reddish hills already referred to, he had found excellent grazing.

Crossing of hill chains to *Nan-ch'üan.*

From Mou-wo a perfectly open plateau stretched away to the north-west, sloping up gently in that direction and sending its dry drainage beds down towards the north-east. On the gravel surface, bare but for scanty tufts of scrub, the caravan track showed up clearly and allowed us to cover with ease a march of close on 25 miles to the well of the Nan-ch'üan. Some six miles before reaching it we crossed a broad and much-decayed hill chain with its crest rising only about 350 feet above the elevation of Mou-wo and almost completely buried in detritus. It was seen to sink away to the north-west into a wide depression, which appears to gather whatever drainage passes down the ground crossed on this and the next two marches. This chain and two other low spurs, marked by crumbling rocky ridges, over which our route led between Nan-ch'üan and Lo-t'o-ching (Map No. 40. D. 3), probably represent eastern offshoots of the fourth Pei-shan range of Futterer. According to his map and description this range is broken up farther west also into a series of parallel chains. To this assumed nexus points also the east-north-easterly trend that he records for the range as a whole.[2]

Well of *Hung-tou-shan-ching.*

Our march of September 9th took us, after we had proceeded about 13 miles, across the crest of another gently rising and much broken hill chain, at an elevation of about 5,300 feet, similar to that of the chain passed on the way to Nan-ch'üan. At the mouth of the winding Nullah in which the route descended from it to the north-west we passed low dark red cliffs which looked to me like porphyry. The well where we halted, called by our guides *Hung-tou-shan-ching*, lay on the bare gravel slope of a wide open valley offering but the scantiest scrub for the camels and no grazing whatever for the ponies. Low broken ridges limited the horizon to the west, but northward a distant vista opened over a wide trough-like depression. Beyond it far away rose the rugged crest line of a range which after the flatness of the ground passed on the last two marches looked quite impressive. Our guides recognized it as the Ma-tsun-shan, which had been mentioned to us at Mao-mei as containing valleys regularly grazed by the flocks of 50 or 60 Mongol families from the side of the Etsin-gol. The Russian Trans-frontier Map roughly marks it to the north of the route towards Hāmi. Of the large river along which this reported route was supposed to approach the range we could see nothing.

Low ridges completely decomposed.

On September 10th a short march took us first over an utterly bare plain of gravel, where only strips of detritus 10 to 15 feet high marked the position of low ridges completely decomposed. Then another flat spur was crossed at about the same elevation as that of the two last mentioned. The wide basin-like valley beyond seemed far too barren to offer an opportunity for a halt. But after crossing it westwards the track brought us to a little hollow containing a rather brackish well, called by our guides *Kuo-ti-ching*,[3] and a small patch of reeds growing round sandy hillocks. Here we were glad to camp and let our animals have some badly needed grazing.

Springs of *Lo-t'o-ch'üan.*

The next day's march lay first for about 10 miles across a wide valley containing numerous low terraces of a very fine grained almost black rock of sedimentary origin. Then a gentle ascent past rounded flat-topped ridges brought us on a wide plateau to a large reed-filled basin watered by the springs of *Lo-t'o-ch'üan*. These, about a dozen in number, gather near the western edge of a depression close on two miles wide. They are evidently fed by subterranean drainage from the chain of hills visible to the west and south-west of Lo-t'o-ch'üan. This chain rising to heights

[2] Cf. Futterer, *Wüste Gobi*, pp. 18 sq. A somewhat higher portion of this range was sighted by us west and south-west of Lo-t'o-ching; see Map No. 40. B, C. 3.

[3] By a draughtsman's error which escaped attention, Map No. 40. D. 3 shows this name wrongly as *Kuo-ti-ch'üan* and that of the springs at Camp 208 as *Lo-t'o-ching*.

between about 6,200 and 6,700 feet is probably a part of the fourth Pei-shan range already referred to. It forms the southern rim of a big trough-like valley, overlooked on the north by the far more imposing Ma-tsun-shan range and close on thirty miles across between the crests of the two. There could be no doubt that the Ma-tsun-shan, rising now before us with bold conical peaks, whose approximate heights, according to clinometrical readings, ranged from 7,040 to 9,160 feet, is identical with Futterer's third and highest Pei-shan range. The numerous beds of streams, which descend from it draining eastwards, were all found dry when we passed. But they must carry a certain amount of subterranean drainage, and this, if it gathers farther east in depressions like that of Lo-t'o-ch'üan, would fully account for the reported extent of Mongol grazing grounds near the Ma-tsun-shan. Though we could not spare time to search for these, we had visible proof of their existence in a large camel caravan which we met at Nan-ch'üan carrying wool from these Mongol camps for Chinese traders.

Hillocks of volcanic rock.

A day's rest by the springs and luxuriant reed-beds of Lo-t'o-ch'üan was a boon to men and beasts alike. Then on September 13th we set out to the north-west on a march which proved distinctly interesting. It took us first over a bare stony Sai covered with the detritus of ridges that had almost completely worn away. After passing several dry beds, all descending from the west, we entered a region of low rocky hillocks, 20 to 30 feet high and of rounded forms, rising above the sea of detritus. There could be no doubt of their igneous origin, seeing that the rock, where I could examine it, was granite and was marked all over with small cavities, the matrices left by the more yielding parts of rock which had subsequently decayed and been carried off under aerial action. After we had proceeded about 11 miles the track brought us, amidst these low rounded 'kopjes', to a tiny oasis of scrub with a solitary small tree which looked like a Jigda or Eleagnus. We did not see a well, but the presence of abundant camel droppings pointed to a caravan halting-place. Small cairns on hillocks now guided us towards a small gap in the range rising before us. Following the north-westerly direction thus indicated for two miles we reached the lower edge of a uniform detritus glacis. It was the alluvial fan formed by the streams that once descended from the range on either side of the gap towards which our track was leading.

Ascent towards Ma-tsun-shan range.

As we ascended this alluvial fan, the range before us, especially in its western portion, presented quite a striking appearance with its serrated crest line and some bold rock pyramids rising above it. We had covered about eight miles of this ascent when the approach of dusk made our guides search anxiously for a chance of finding water. Their bewildered state was fully accounted for later when we found that the pass towards which we were moving was not on the route they knew of. However, a patch of vegetation half a mile off the track eastwards attracted our attention, and there, much to the guides' relief, we found four or five shallow wells. They were filled with mud, apparently brought down by recent rain, but when one of them was cleared, it yielded an ample supply of water, better than any we had tasted since entering the Pei-shan. The position of our night's camp was at the very foot of the first rocky hills that emerge from the smothering cover of detritus. All through the evening a cold gale was blowing down violently from the north, preparing us for the change of climatic conditions soon to be encountered.

The defile through which the ascent led on the morning of September 14th narrowed rapidly: it lay between rocky hills, much worn and picturesque, rising to heights of 300 to 500 feet above the valley bottom (Fig. 287). The cliffs here showed a strike approximately from NE. to SW., with a dip of 80° to the SE., and displayed every mark of far-advanced abrasion by water and aerial action. The fact that scrub and tufts of a hardy grass (*pile* in Turki) were to be found not only at the bottom of the defile, but also to some height up the slopes, clearly indicated a diminished degree of aridity. The watershed was reached, after a march of about 4 miles, on a small plateau



277. KAN-CHOU RIVER DEFILE SEEN FROM CHÊNG-I.



278. FORT OF O-PO, NAN-SHAN, SEEN FROM WEST.



279. VIEW DOWN VALLEY LEADING TO O-PO-LING-TZŬ PASS.



280. MEADOWS AT MOUTH OF VALLEY LEADING TO PIEN-TUNG-WVRL.



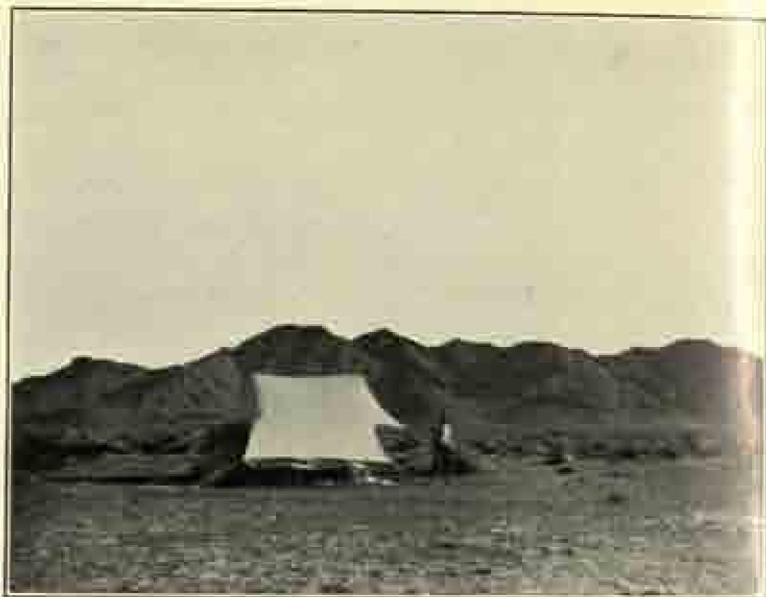
281. WEST GATE OF SAN-PA VILLAGE, ON KAN-CHOU RIVER



282. ON THE ROAD TOWARDS SSŬ-PA VILLAGE, ON KAN-CHOU RIVER.



283. VALLEY ABOVE YEH-MA-CHING, PEI-SHAN.



284. CAMP AT TUNG-ÊRH-SHAN WELL, PEI-SHAN.



285. BASIN OF MING-SHUI, PEI-SHAN.



286. FOOTHILLS OF KARLIK-TAGH ABOVE BAI.



287. VALLEY ON SOUTH SIDE OF MA-TSUN-SHAN RANGE, ABOVE CAMP 209, PEI-SHAN.



288. WATERSHED ON MA-TSUN-SHAN RANGE, PEI-SHAN.

about 300 yards across (Fig. 288), at an elevation of a little over 7,000 feet.[4] None of the higher points of the range to the west was here visible. The ground continued almost level for about a mile, and here we came upon a herd of mountain sheep peaceably grazing.

Approach to *Sha-ching-tzŭ* well.

For about three miles the descent led down gently to the north-west in a slightly widening valley, brightened by the autumnal tints of the still comparatively plentiful scrub and grass. Beyond that the valley debouched on to a wide alluvial fan, cut up by very numerous shallow drainage channels, all dry, and all trending towards NNE. The detritus slope was broken here and there by low outcropping ridges of dark red or black rock, suggesting granite or some closely allied rock. Isolated little hillocks also, like those met with south of the range, were to be seen in places emerging from the detritus. On approaching a low terrace marked by some cairns, we came upon a delightfully green patch, about a quarter of a mile across, with a large well 6 feet deep in the middle, holding excellent water. We subsequently ascertained that this tiny oasis encircled by detritus hillocks is known as *Sha-ching-tzŭ*.

Springs of *Tsagan-gulu*.

Our route on September 15th led first over detritus slopes of the same type as those crossed on our descent from the Ma-tsun-shan. Remnants of completely decayed rocky ridges cropped out here too at intervals and seemed of the same composition as that met with to the south of Sha-ching-tzŭ. After about 10 miles' progress to the NW. we came upon another small patch of luxuriant scrub with a shallow well, at an elevation, like the last, of about 6,100 feet. From here our *soi-disant* guides would persist in going astray to the north. But fortunately after a long search we managed to strike again the track still leading to the north-west. It took us first across a bare and almost level plain of detritus and then over gently falling ground to a long depression with abundant grazing and some springs. Near its western edge, below a well-marked rocky plateau, we found six Mongol families encamped with their sheep and cattle, and from them learned that we had reached *Tsagan-gulu*. These Mongols had come from the grazing ground to the south-east along the Ma-tsun-shan and were to return there for the winter. They said they knew little or nothing of the routes towards Barkul or Hāmi, and our endeavours to secure a guide failed. They, however, told us the true names of our last two halting-places, and explained that the well of Lo-t'o-ching, for which our Chinese 'guides' had mistaken Sha-ching-tzŭ, lay in reality to the south, on the route usually taken by caravans from Chin-t'a towards Ming-shui. This was said to skirt the western end of the Ma-tsun-shan and probably passes through a depression in the line of Futterer's third range.[5]

Caravan bound for Uliassutai.

I had found the name of Tsagan-gulu marked in the sketch-map of MM. Grum-Grizhmailo as a point where, evidently according to information gathered from Mongols, a route leading towards Uliassutai, the former Chinese administrative centre far away in outer Mongolia, was supposed to cross a route that appeared to be the one we were following. It was therefore of interest to learn, just as we were setting out next morning, that a large camel caravan had arrived overnight carrying rice and flour from An-hsi to Uliassutai. If the information was correct it would point to there being wells or springs to be found also on a line cutting transversely from An-hsi across the Pei-shan routes of Futterer and Grum-Grizhmailo (Obruchell).

March to *Liu-kou* well.

Having secured welcome supplies in the form of milk and a couple of sheep, we made on September 16th an easy march of about 16 miles to a well that a Chinese-knowing Mongol had spoken of as *Liu-kou*. The track for the first five miles or so led through abundant scrub with

[4] It is of interest to note that the pass by which Professor Futterer's route crosses this identical range, the third of his reckoning, shows an elevation practically the same, viz. 2,130 metres (6,988 feet); see his *Wüste Gobi*, p. 43.

[5] Grum-Grizhmailo's sketch-map seems to mark such a gap, but evidently only 'from native information' and in a position too far east relative to Tsagan-gulu.

patches of reeds. The dry channels crossed here as well as at Liu-kou all drained to the north-east. Then we passed over a dreary plateau of detritus broken by numerous low and much-decayed ridges in which I could recognize granite and seams of quartz. Their strike was difficult to determine with any certainty. Liu-kou proved to be a small area of reeds and scrub situated by a wide flood-bed at an elevation of 5,890 feet, about the same as that of Tsagan-gulu. The well, found practically dry, gave excellent water when deepened. To the west a line of hills could be seen at an approximate distance of some twenty miles. Comparison with MM. Grum-Grizhmailo's map made it appear probable that their and M. Potanin's valley of Yeh-ma-ch'üan, the last stage before Ming-shui, lay to the east of these hills, near the head of the flood-bed by which we were encamped. But what the connexion was between these distant hills and a range rising clearly before us to the north-west, I was unable to make out.

Start for *Ming-shui.* The fairly warm day was brought to a close by an icy gale from the north-north-east, which raged all night and blew down one of the surveyors' tents. When rising by 4 a.m. for the march which, I hoped, might carry us to Ming-shui, we all felt as if we had been carried back to the wintry Lop Desert. The track led towards a gap in the range that stretched before us from WSW. to ENE. After crossing a belt of low hillocks almost buried in detritus, we ascended the glacis of the range to its foot at about seven miles from camp. An easy ascent of four miles more in a wide defile brought us to a small plateau intersected by a shallow drainage channel running to the north-east. The northern rim of this plateau marks the watershed at an elevation of a little under 7,000 feet. There can be no doubt that this range, of which the highest point in the vicinity rises to about 400 feet above the watershed, is identical with the one crossed by MM. Grum-Grizhmailo and Obrucheff north of Yeh-ma-ch'üan and with Professor Futterer's second Pei-shan range farther west.*

Arrival at *Ming-shui.* The descent was much shorter, and then the track led us due west along a wide open valley of gravel with very scanty scrub. On the south it was flanked by the range just crossed and on the north by another stretching parallel to it from WSW. to ENE. The latter was clearly recognizable as the range in a valley of which I knew that Ming-shui lay, and as the eastern continuation of Futterer's first Pei-shan range. The apparent nearness of our immediate goal, on the route from Su-chou to Hāmi, induced me to pass the small patch of vegetation that the Mongols had mentioned to us under the name of *Yen-ch'ih* (Map No. 40. A. 1), and to push on. The fact that all grass there seemed to have been grazed, and the Mongols' statement that Ming-shui was only 'thirty *li*' farther on, influenced this decision. We soon found reason to regret it. Twenty-five miles had been covered, with the same icy gale pursuing us all the way, by the time that we had gained the flat saddle of a broad spur connecting the two ranges at the head of the valley. We had still to cross a wide basin westwards before we could reach the low but rugged looking hills between which the wells of Ming-shui were to be looked for. The descent over the wide and bare detritus slope seemed never-ending, and it was quite dark before we arrived at the foot of the hills and stumbled on a dry stream-bed with a big cairn showing above on the sky-line. Some coarse grass was found near the bed, and there we halted for the night, after having covered a distance of 32 miles. The camels did not arrive till next morning, some of the animals having broken loose and strayed, and the men sent to search in the neighbourhood found only a square walled enclosure in ruins, but neither well nor fuel. The gale had somewhat abated in the evening: yet the bitter cold kept most of us awake that night.

At daybreak our hapless 'guides' discovered the well of *Ming-shui* about a mile away, and

* The height recorded by the Russian travellers for the watershed is 7,074 feet. MM. Grum-Grizhmailo's map also shows a small plateau on the top of the range with a drainage bed north-eastwards.

when the baggage had rejoined us we moved down to it through a narrow gorge flanked by rocky knolls. This presently debouched into a wide boulder-strewn basin, enclosed on all sides by boldly shaped hills (Fig. 285). Some of these rise about a thousand feet above the level of the basin, for which the mercurial barometer indicated an elevation of 6,660 feet. Near the centre of the basin was found the well, about 8 feet deep, yielding good water in plenty; south of it stood a ruined mud enclosure, and to the north on a low knoll the remains of a small Chinese shrine. Some fair grazing was available for the ponies in the small nullahs descending into the basin, and after the last trying march an extra day's halt was needed by all. Well of *Ming-shui.*

At Ming-shui we had struck the route leading from Su-chou via Shih-êrh-tun (Map No. 40. c. 5) to Hāmi, and also the point whence I proposed to detach Surveyor Muḥammad Yāqūb towards the latter place. By letting him carry a route traverse first along the caravan track from Hāmi and then to the small oases of Tāsh-bulak and Khotun-tam, our previous survey work to the south of the Karlik-tāgh would be usefully supplemented[7] (Map No. 37. A, B. 3). From Hāmi he was then to proceed to the depression of the Shona-nōr basin where the drainage from the western portion of the Karlik-tāgh finds its end, and subsequently to map the route through waterless desert to the eastern extremity of the Turfān district. Though the caravan track towards Hāmi was likely to be well marked and the younger of our two Chinese, whom I proposed to send with the Surveyor, stated that he was familiar with it, detailed written instructions were needed to safeguard the little party from possible mishap; for experience had unfortunately shown that the young Surveyor, though very estimable and plucky, could not be trusted to carry out exploratory work alone with safety. So there was plenty of work to keep me busy during this short halt, besides resting my injured leg. Strained perhaps by such short attempts at walking as were necessary for the direction of the plane-table work, &c., it had shown little signs of improvement during the month that had passed since our start from Kan-chou. Surveyor sent to Hāmi.

Section II.—ACROSS THE EASTERNMOST T'IEN-SHAN

On September 20th both our parties started from Ming-shui after a halt which, in spite of the bitterly cold north wind blowing almost uninterruptedly, had been refreshing for us all. I did not disguise to myself that the last portion of the journey still before us might have its trying parts. My aim was to cross that wholly unexplored eastern extremity of the T'ien-shan which lies beyond the snowy portion of the Karlik-tāgh range and thus to make my way to Bai, which the Russian maps and Mr. Carruthers' survey showed as the last permanently inhabited place to the north-east of that range. Thence I proposed to skirt the northern slopes of the Karlik-tāgh to the towns of Barkul and Guchen over ground comparatively well known. The map of MM. Grum-Grizhmailo and also the Russian Trans-frontier Map marked, indeed, a route derived from native information which might take us in the desired direction from Ming-shui. But as these records showed very considerable discrepancies as regards the positions of the localities named and the distances between them, I was not disposed to place much reliance on such scant indications as they afforded. Still less confidence could be reposed on the local knowledge of our remaining Chinese 'guide', who, indeed, stated that he had once marched with camels from Ming-shui to Barkul, but could not indicate any stages identifiable on the map—where a map was available. Uncertainties of route.

However, the general direction to be followed lay clearly to the north-west, and this we followed together down the valley from Ming-shui for a distance of over three miles from Camp 213. There the well-marked caravan-track towards Hāmi diverged from the dry stream-bed in a westerly Snows of Karlik-tāgh sighted.

[7] See Map No. 37. A-D. 3, 4.

direction, while another rather indistinct track continued along the latter north-westwards.[1] Separating here from Muḥammad Yāqūb we continued to descend the gradually widening valley. At a point about 8 miles from Ming-shui camp, the bold conical hills of an outer chain receded on the western side and allowed us to sight far away in the distance the glittering snowy crest of the Karlik-tāgh. The distance separating us from its nearest point proved to be still fully a hundred miles. All the same it was a most encouraging vision and remained a guiding mark on this and the next march.

Northernmost hill chain passed.

Farther on the descent continued over a gently sloping stony plateau. After a march of 19 miles we pitched camp at a point where we found a well only two or three feet deep in a shallow bed (Map No. 37. D. 4). Our Chinese called the spot *Tung-êrh-shan*. A short distance before reaching it we passed through what looked like a gap in an outer chain of hills. Though not rising high above the valley bottom, they looked picturesque with their bold conical forms and much-eroded black slopes (Fig. 284). There seemed to be a good deal of scrub at their foot, and a herd of Kulāns or wild asses was seen grazing on it. One of them was successfully stalked by Afrāz-gul.

Descent over Pei-shan glacis.

On September 21st a long march, impressive in its monotony, took us down, along the same Ming-shui drainage, over the detritus-covered northern glacis of the Pei-shan. The hills, still rising near Tung-êrh-shan to a conspicuous hill-cone about 6,760 feet in height, sank away more and more under that vast covering of detritus and gravel which overlies the northern foot of the Pei-shan mountain system. In the distance beyond the last rocky ridges cropping out from the vast expanse of detritus could be seen the higher line of the first Pei-shan range west of Ming-shui. Saxaul bushes and low thorny scrub were growing plentifully among shallow beds, which, no doubt, at intervals carry occasional floods from the mountains.

Depression of *Yen-tun* reached.

Towards the end of the march the valley bottom along which we were moving became more and more trough-like; it was flanked on either side by well-marked terraces. The track kept on the gravel Sai above them and brought us, after a march of about 25 miles, to where the trough widened into a reed-covered depression about two miles long. In it we found a large spring, flowing open for a distance of about 70 yards and farther on disappearing in a marshy thicket of reeds. The spring, which our Mao-mei informants had mentioned by the name of *Chin-êrh-ch'üan*, is evidently fed by the subterranean drainage of the Ming-shui valley. Our camp was pitched on a *shōr*-covered bank above the spring, at an elevation of 4,020 feet above sea-level. The day's march had meant a descent of close on 1,800 feet from Tung-êrh-shan. This, together with the appearance of the ground ahead, left no doubt that we had now reached that extensive depression which the An-hsi–Hāmi road crosses near the station of Yen-tun (Map No. 37. A. 4), and which has been designated in consequence the trough of Yen-tun.[2] It marks sharply the dividing line between the Pei-shan and T'ien-shan systems and terminates in an as yet unexplored portion of the western Pei-shan.

Dry beds at head of 'Yen-tun trough'.

On the morning of September 22nd we continued our march north-westwards on the detritus covered terrace above the left bank of the wide dry bed. A branch of it coming from the south that had to be crossed close to camp was hollowed out to a depth of 30 feet. The main bed with which it united was close on three-quarters of a mile wide, and after running north-west for about four miles from C. 215 turned to the west. We crossed it about a mile farther down and soon passed beyond it into a maze of small eroded ridges of granite holding little nullahs, filled with scrub, between them. It was the last offshoot of the spur that we had skirted along its western side on the way down. After

[1] The point of junction of the two routes was found correctly marked in MM. Grum-Grizhmailo's route map. But, by an erroneous conjecture, the course of the Ming-shui bed is made therein to take, farther down, a turn to the west, a wrong course reproduced also in the Futterer map.

[2] See Futterer, *Wüste Gobi*, p. 10.

passing this somewhat higher ground we came upon a dry deep-cut bed, about 30 yards across, which seemed to have its head in hills far away to the east. Its direction pointed to a junction lower down with the trough coming from Chin-êrh-ch'üan.

A dried-up river system.

Beyond this the broken ground became level and then sloped down gently to a wide fan-like basin of gravel covered with scrub and furrowed by numerous shallow channels. These were all descending southward from the hills and thus carrying T'ien-shan drainage. Unfortunately a haze, perhaps brought by the light north-westerly wind, had hid all distant mountains since the morning. Near the first larger channel the aneroid indicated an elevation of 4,100 feet, only slightly higher than that of Chin-êrh-ch'üan. The general direction followed by all these drainage beds was south-westerly, and this makes it quite certain that they, too, join the 'Yen-tun trough', which the route from Ming-shui to Hāmi crosses near the halting-place of Wu-t'ung-wo-tzŭ (Map No. 37. c. 4), about twenty miles farther to the south-west.[2] It will need further surveys to decide from which side this big dried-up river system of the 'Yen-tun trough' received its chief tributaries. So much, however, is certain, that the area once drained by it extends much farther to the east than is shown by former maps.

First foot-hills of T'ien-shan.

We had moved to the north-west for more than twelve miles across the very gently rising glacis of gravel before we reached the first foot-hills of the T'ien-shan. Passing up a defile about 300 yards wide at its bottom we came, after a vain search for water by our guide in a side valley north-westwards, upon a group of Toghraks and, close by, a spring amidst reed-beds. Its discovery was doubly welcome, for all traces of a track had disappeared since we left the gravel Sai. The view opening here northward across a plateau was wide. But the boldly serrated range that it showed in the distance raised doubts as to how, in the absence of reliable guidance, we should find a passage across it practicable for our already hard-tried camels.

Water and scrub in nullah.

On the morning of September 23rd our 'ta-lu-ti' appeared to have recovered from his bewilderment and stoutly declared that he recognized the halting-place of *Ta-hsi-k'ou*, mentioned in the itinerary obtained at Mao-mei, in the spring at which we had camped. Stating that he now remembered his bearings, he led on across the plateau to the north-west. As this direction was evidently not such as to take us far away from Bai, our goal to the north of the range, I was ready to follow it. For seven miles we traversed a gently rising plateau, covered for the most part with detritus, from which there emerged clusters of low rocky ridges and knolls of what looked like trachyte. Then we struck a narrow Wadi-like nullah, with sandy bottom and abundant scrub along its banks. The cliffs on either side rose steeply to over a hundred feet and showed a strike from NW. to SE. with an almost vertical dip. Their faces, like those of the exposed rocks that we subsequently came upon, were far less decomposed than the hill-sides we had passed in the Pei-shan. We had advanced another three miles when the bottom of the valley widened, and the sand in what obviously was the bed of a temporary stream showed signs of moisture. On digging holes here we came upon deliciously fresh water at a depth of less than one foot. Equally encouraging was it to find good grazing for the ponies along the banks, and even some bushes of late-flowering wild roses.

Herdsmen's shelters.

As we ascended the valley farther, these signs of a comparatively moister climate continued, and when we had passed a reed-sheltered spring and some rough enclosures near it which looked like herdsmen's shelters, we began to hope that the faint track we were following would prove to

[2] *Wu-t'ung-wo-tzŭ* of Muhammad Yāqūb's traverse is identical with *Utun-osżü* of Professor Futterer. In view of the concordant heights of Chin-êrh-ch'üan (4,020 feet) and the point marked with 4,100 on our route (Map No. 37. c. 3), Wu-t'ung-wo-tzŭ probably lies considerably lower than 1,200 metres, the elevation shown for Utun-osżü. The aneroid readings on our Pei-shan route were checked by mercurial barometer at several points and were found very consistent with the latter; see *Memoir on Maps*, p. 153.

be the way across the range that we had so eagerly desired. It was a hope which proved well founded in the end. But its fulfilment was delayed. When we had covered some eighteen miles and found ourselves at what seemed the very head of the valley, our 'guide', so confident before, declared that he had mistaken his course and that the true route had been left behind in a side valley leading northward near the point where we first had found water. Uncertain whether we should find water in the highest portion of the valley still before us or beyond it, we felt obliged to turn back for that night to the spring that we had passed near the rough shelters.

Futile search for 'guide's' route.

At this Camp 217 I decided to sacrifice a day to tracing, if possible, the regular caravan track which our 'guide' felt quite sure we could strike again by moving a short distance south-eastwards. There is no need to describe here at length the details of the Odyssey that ensued, enlivened as it was by a succession of incidents caused by the queer and in the end almost frantic behaviour of our poor '*ta-lu-ti*'. It will be enough to record that after first moving down the valley and then searching a plateau to the east, intersected by branches of the same drainage bed, we found indeed abundance of grazing for camels and marks of its having been visited, but no trace of a route leading across the range. Our hapless 'guide', now inflamed with a kind of desperate obstinacy, continued to drag us south-eastwards for another seven miles across a much-broken plateau, previously hidden by a low spur. Then the position reached relatively to the alleged 'Ta-hsi-k'ou' made it quite certain that no track leading from the latter point northward could possibly have escaped us. Satisfied in this respect I turned back to the valley where we had been lucky enough to find water, glad to let our ponies enjoy the fine grass that it offered near Camp 218.

'Guide's' despair.

The fate of our 'guide' now gave rise to anxiety. In his vain search for his *ta-lu*, he had continued to rush ahead, and the two men sent after him had failed to catch him up before dark. However, after daybreak he rejoined us, with the sullen despair of a man who knew that the line I decided to follow north-westwards was bound to take us into impossible ground and end in our destruction in waterless 'Gobi'. A variety of considerations led me subsequently to conclude that the 'high road' which the unfortunate man so desperately strove to bring us back to lay indeed much farther to the east. But we had probably lost it already at the spring of Chin-êrh-ch'üan. One of my Turkī followers subsequently reported that while looking after the ponies there, he had noticed a broad track leading off to the north. It must be left for some future traveller to ascertain whether this information gives the clue to the true line followed by the caravan route towards Bai.

Watershed E. of Karlik-tāgh.

On September 25th we once more ascended the valley to its head. Before our start I took care to make sure that our two iron water-tanks were properly filled, and in addition to this regular provision, water was also taken in the available goatskins. As we again approached the head of the valley, I noticed on our right a big wall of almost vertical cliffs, over 80 feet high. The rocks, red in colour and suggesting coarse sandstone, showed clear stratification and a strike from east to west. After having covered nine miles from Camp 218 we reached a flat saddle at a height of a little under 6,000 feet, offering an open view towards the Karlik-tāgh proper and the southern slopes of its eastern continuation. A cap of clouds was hiding the snow peaks from view. The divide on the saddle lay between the valley we had followed and another draining south-westwards. So my relief was great when the track, such as it was, turned to the north-west, keeping along a succession of small plateaus separated by low rocky ridges. It was skirting the steep slopes of a massif that rose, on the east, to over 9,200 feet in height. Here, too, the stone seemed the same coarse red sandstone striking west to east. Then, after having thus covered some three miles, we reached what manifestly was the true watershed on the axis of the range at an elevation of 6,000 feet (Map No. 37. c. 3). When the valley that we entered on the other side was found to descend north-north-west, hope rose high that it would offer us the desired access to Bai.

The descent was gentle at first, with low cliffs on either side and the scrub-covered ground between them fairly open. Some mountain sheep were sighted and also big coveys of partridges. But at a distance of about a mile the valley bottom turned into a deep-cut gorge, with steep rock walls rising hundreds of feet on either side. The cliffs consisted of granite striking WNW.–ESE. with an almost vertical dip. The rock walls and the narrow bottom were quite bare of vegetation, except at one point about four miles from the watershed where a bed of reeds was found at the mouth of a side gully (Fig. 295). The gorge wound more and more as it descended and the rock coulisses seemed often to close in completely. Accordingly when dusk obliged us to halt, in the narrow bottom of the gorge, I was not free from anxiety lest it might, perhaps, end in a couloir impracticable for laden camels. No cairns of the Chinese sort to mark a route had been noticed anywhere along the day's march. But the men drew hope from the sight here and there of little stone heaps blocking turns into wrong gullies after the fashion prevailing in Turkestān. It meant for them a return from the region of the heathen 'Khitai'. The gorge all the way down recalled scenery such as I had seen near Ara-tam at the southern foot of the Karlik-tāgh and between the depression of Turfān and the Kara-shahr valley. There could be no doubt that we were in mountains belonging to the T'ien-shan system. Descent in deep-cut gorge.

The north-eastern trend that the gorge had been taking had caused some uneasiness both to Lāl Singh and myself; for it seemed likely to take us farther away from the assumed position of Bai, where alone we could now hope to find water. The disappearance, moreover, of all traces of a track for some distance back raised doubts whether the exit from this gloomy gorge, as far as our camels were concerned, might not lie through some gully on either side. However, when we had continued our march on the morning of September 26th for about two and a half miles, relief came at last. Ismail, one of my Yārkandī followers, stimulated to unwonted initiative by the common anxiety, had climbed the cliffs to the west of the gorge and was heard thence shouting excitedly. On rejoining he reported that he had seen a wide unbroken Sai beyond the rugged spur above us and far away in the distance a dark spot which he took for trees and houses. As we moved down, the flanking spur on the left soon grew less rugged, and at one point a gully was found which allowed the ponies carrying my litter to gain the crest. Escape from gloomy gorge.

There a vast view unfolded itself before us. To the west and west-north-west the snowy peaks of the Karlik-tāgh far away rose in perfect clearness, the northern slope of the range down to about 9,000 feet powdered with what obviously was fresh snow from a recent storm. A confused mass of black spurs was seen descending from them towards a bare plateau; this was cut through by a valley evidently containing the stream that carries water to the outlying settlements of Adak and Nōm. Beyond this plateau to the north-west rose another and still more distant snowy range—the mountains overlooking Barkul. Behind us to the south-west and south barren foot-hills (Fig. 286) masked the height of the eastern continuation of the Karlik-tāgh. Almost due north our binoculars showed a dark patch of cultivation which was evidently Bai, the goal towards which we had been steering. Deceptive as I knew the bare Sai to be that stretched unbroken towards it, it was clear that Bai lay much lower than where we stood (4,450 feet above sea-level by aneroid), though the latest map in my hands placed it at 6,000 feet. Impressive in the uniformity of its vast expanse was the view to the north-east. There one huge desert valley of gravel seemed to stretch away to the foot of misty hill chains, fading away into Mongolia and clearly forming part of the Altai. I could scarcely have gained elsewhere an impression more comprehensive of the varied character of the ground comprised in the great region north of the T'ien-shan for which the name of Dzungaria offers itself as a convenient designation. View along N. slopes of Karlik-tāgh.

An easy descent of eleven miles over the gentle Sai of bare gravel brought us to the first vegetation on a clayey steppe dotted with tiny tamarisk-cones. The sand lay all heaped up behind them Arrival at *Bai.*

to the north-east, clear proof that 'aspiration' was drawing the prevailing winds down from the cold heights of the 'Snowy Mountains'. Then a mile farther on came a steep drop into a reed-filled bay where a subterranean flow of water was gathering in marshy springs, and finally we arrived at the straggling little village, almost hidden as we came close to it by the banks of the deep-cut trough in which it is situated. It was a great relief to meet at once with a hearty Turkī welcome and to be assured that it was really Bai, a village administered from Hāmi. To have reached it after nearly four weeks of continuous desert travel without the loss of a single animal was no small satisfaction. Our poor Chinese 'guide' had almost to the last persisted in believing that the place we were marching down to was but an illusion created by deceptive spirits.

'Tāghlik' communities.

Though Bai is probably the easternmost settled place in Dzungaria everything seemed closely to reflect the conditions of life with which the Tārīm basin had made me familiar. To that still distant ground I felt carried back during the pleasant day of halt that we spent here, with my tent sheltered in a small orchard where the fruit trees were still in full leaf. The water irrigating the fields and gardens is all *kara-su*, derived from springs rising a short distance higher up in the wide drainage bed. Its volume as measured at the village mill was only two cubic feet per second. No flood water from the mountains was said ever to reach the village lands, and from their position in the very bed this statement appeared to be correct. Of the half-dozen places with cultivation to be found north of the Karlik-tāgh and belonging to Hāmi, Atūrūk, our next stage westwards, which comprised about a hundred households, was described as the largest, Bai itself counting about fifty. But the numerous camps of more or less nomadic Turkī families grazing their flocks and herds in the valleys and on the lower slopes of the Karlik-tāgh farther west probably represent a very considerable addition to the population of this small but distinctly interesting submontane tract. In spite of the semi-Chinese dress adopted by the men, these 'Tāghliks' or hill people appeared to me to have retained a great deal more of genuine Turkī speech and ways than their fellow subjects under the Wang of Hāmi, in the oases south of the range.

Routes from Bai.

About the route from the Kan-su side I did not succeed in eliciting any clear information. Apparently the rare caravans proceeding by this route to Barkul do not touch Bai, but keeping closer to the foot of the mountains move direct towards Atūrūk, where grazing, food supplies, &c., are abundant. But how we failed to come upon their track on our descent towards Bai remained puzzling. That people from Bai graze their camels and donkeys during the summer in a portion of the range through which we had made our way was acknowledged. Ūmūr-tāgh appeared to be the general name given to it, and the existence of springs at two points known as Chagan-burgase-bulak and Kutghoi-bulak, evidently Mongol designations, was mentioned. Of routes passing north-eastwards into the Mongolian 'Gobi' the people of Bai could, or would, give no information. But of their existence there could be little doubt, and the ruined fort found close to the south-western end of the cultivated ground and near the springs already referred to was obviously meant to guard the approach from that side. From the report and the photographs brought by Afrāz-gul, whom I sent for a preliminary inspection, it appeared manifestly Chinese and of no great age.[4] Probably it was meant to shelter one of those posts by which the Chinese, during their struggles with the Dzungars under the Emperors K'ang-hsi and Ch'ien-lung, protected their newly won foothold at Hāmi, essential for the conquest of Hsin-chiang.

[4] Afrāz-gul's sketch shows the fort as a square circumvallation, measuring about 320 feet on each side of the interior and entered through gates in the middle of the north and south faces. Rectangular bastions project at the four corners. The walls of stamped clay are 8 feet thick and of no great height. Parallel to the walls were traceable wall-foundations of rows of barrack-like small quarters, all badly decayed.

Tāsh-bulak (Map No. 37. A. 3) was another such post, established by the Chinese and still garrisoned recently, for the purpose of guarding the southern issue of the route crossing the Karlik-tāgh from the side of Bai and Atūrūk.

This brings us finally to the question what part the route followed by us from Mao-mei and Chin-t'a to Ming-shui, and thence bifurcating towards Hāmi and Bai, might have played in the history of China's relations with the region along the easternmost extremity of the T'ien-shan. Whether any references to its use can be traced in Chinese historical records is a question which must be left to others to determine. But judging from the physical conditions now prevailing along it we may, I believe, safely assume that it could never have competed in importance, for the purpose of general traffic and military movements, with the route crossing the Pei-shan desert between An-hsi and Hāmi. This is sufficiently proved by the fact that the number of marches to be covered between places possessed of cultivation is nearly twice as great on the route we followed as on the latter. Use of routes passing Ming-shui.

At the same time it is certain that the track we followed could not have offered any serious obstacles to the movements of small bodies of hardy nomads bent on raids upon the Kan-su marches, nor even to tribal treks on a minor scale in either direction. As long as security was assured by an established power controlling the territories both south and north of the Pei-shan, a certain amount of trade carried solely on camels might always have made use of this and the parallel routes farther west in preference to the 'high road'. Grazing along the latter must necessarily have been far more restricted, not merely on account of the increasing aridity of the ground as it approaches the absolute wastes that stretch north of the terminal Su-lo-ho valley, but also as a result of the inroads that continuous traffic would inevitably make upon the scanty patches of vegetation to be found at the rare wells or springs.

Section III.—PAST THE KARLIK-TĀGH AND BARKUL

From Bai I started on September 28th on the journey that in a space of four weeks carried me westwards along the northern foot of the T'ien-shan as far as the site of the ancient Pei-ting near Guchen, and thence south across the snow-covered portion of the range down to the Turfān depression. This was to serve as our base during the winter, and we must reach it rapidly, having regard to the time that the work there awaiting us would probably require. The direct route which we were obliged to follow led for the most part over ground the topography of which was comparatively well known, and hence offered little opportunity for fresh exploration except in its concluding portion. Yet a special historical and geographical interest made me anxious to see as much as circumstances would permit of the ground to the north of the T'ien-shan; for physical features, which in some respects curiously recalled those of another true land of passage, the region along the northern foot of the Nan-shan, had caused it to play an important part in great historical migrations, such as those which carried westwards the Great Yüeh-chih or Indo-Scythians, the Huns and Turks. Journey along N. foot of T'ien-shan.

To the west of the pass connecting Hāmi with Barkul our route necessarily followed the well-known high road connecting Hāmi with all the chief places along the southern part of Dzungaria. It has served as an important artery of traffic whenever China's trade and political control extended into Central Asia, and it has been frequently taken by modern travellers. To the east of the pass, likewise, the physical character of the ground we traversed along the foot of the Karlik-tāgh had been previously examined with care by a very competent student, Mr. Carruthers.[1] It will therefore be possible for me to deal briefly with our journey as far as Guchen and to restrict more detailed observations to such points as have a direct bearing on the historical past of this region.

Our first march from Bai to Atürük, the largest village north of the Karlik-tāgh, served aptly to illustrate the change to the less arid climatic conditions that favour the tracts along the T'ien-shan *March to Atürük.*

[1] See Carruthers, *Unknown Mongolia*, ii. pp. 521 sqq.

to the west. For when, after a long ascent along the gravel glacis of a barren outer range running parallel to the Karlik-tāgh, we dropped down into the valley westward, we found village lands abundantly watered by lively streams. They come down straight from small glaciers and permanent snow-fields that crown the crest of the Karlik-tāgh down to about 12,000 feet above sea-level. The amount of drainage they carry is sufficiently indicated by the fact that the small river formed below Atürük, after breaking through the outer range, contains enough water to irrigate the fields of Nōm, a village situated at the foot of the outer range some thirty miles farther down. The abundance of grazing on the northern slopes of the Karlik-tāgh was brought home to me by the admission of Abdul Niāz, our host, the headman of Atürük, that he kept there some three hundred ponies of his own, besides a large flock of sheep. The number of sheep belonging to the Wang of Hāmi that are grazed there was put at over ten thousand. It was said that snow lay at Atürük for close on four months to a depth of two or three feet, and that rain was fairly frequent during the summer. During the winter months all the flocks and herds move down to the valleys of the outer range northwards, where the snow-fall is sufficient for their watering and vegetation is abundant. The comfort, amounting almost to rustic luxury, that we found under Abdul Niāz Dōgha's hospitable roof well illustrated the wealth derived from conditions so favourable to grazing.

March to Tur-köl.

Next day we continued our journey westwards towards the basin of the lake known as *Tur-köl*.[1] Passing in full view of the snows of the Karlik-tāgh (Fig. 289), we found abundant scrub and short grass even on the stony plateau of Kara-singir (Map No. 37. A. 2), close on 7,000 feet above sea-level, which separates the basin from the Atürük valley. I received the same impression of nomadic ease and wealth when halting that night at the camp of the 'Dōgha' (Darōgha) of the Tur-köl 'Tāghliks', which lay at that time above the Turgan-gol stream. His people were also growing oats on patches of cultivation lower down towards the lake. But the mud huts built near these were not permanently occupied, and the whole little community was by November moving its 'Ak-ois' to the valleys north of the outer range for winter pasture. Winter was evidently close at hand, and the Turgan-gol was half-frozen when we left this pleasant Turkī encampment.

Across watershed towards Barkul.

On the long march of some thirty-two miles, which on September 30th carried us across the watershed dividing the basins of the lakes of Tur-köl and Barkul, we had striking proof of the abundant grazing that this ground affords and of the changed climatic conditions that account for it. A wide belt of rich grass land encircled the lake and its fringe of spring-fed marshes, and horses belonging to the Wang of Hāmi were grazing here in large numbers. The wide valley of Ölügoi (Map No. 34. D. 1, 2), which was seen descending from the north-west towards the lake, was stated also to provide ample grazing. Its streams drain the southern slopes of the previously mentioned outer range. This rises at the head of the valley to heights of well over 11,000 feet, and the highest portion of its crest was said to retain snow all through the summer. At the time of our passage, fresh snow covered its slopes to a much lower level, as it did those of the Karlik-tāgh to the south. The watershed towards the basin of Barkul is formed by a broad spur jutting out from the Karlik-tāgh to the north-west (Map No. 34. D. 2), and as we moved up to it over a stony Sai on which scrub grew in plenty, conifer forest was seen to clothe the slopes down to about five hundred feet above the almost flat saddle (7,290 feet). Such forest growth, which probably consisted in the main of firs, remained within constant sight on the subsequent marches to Barkul and also for a considerable distance beyond, as seen in Map No. 34. It here covers the northern slopes of the T'ien-shan between the elevations of about 9,000 and 7,500 feet and offers ocular demonstration of the great climatic divide that is formed by the crest of the range; for no forest growth whatever

[1] This is the name of the lake as I heard it usually pronounced; *Tor-köl* is another form also used. For an early Chinese designation, see below, p. 541.

is to be found along its southern slopes all the way from the Karlik-tāgh east and north of Hāmi to the mountains above the Turfān basin.

Climate of Barkul valley.

The view opening westwards from the broad grass-covered saddle was extensive and most striking in its contrast with what I remembered seeing, on my passage in 1907, of the dreary wastes of stone or gravel between Hāmi and Pichan. The open valley that slopes down towards the lake of Barkul between the ranges north and south displays a wide expanse of flat grass land at its bottom, and above it either forest-clad slopes or rolling downs covered with vegetation.[3] Considering that this great valley of Barkul stretches fully a hundred miles from east to west and that its width, as measured between the crest of the two bordering ranges, is as much as thirty miles, it is easy to realize the economic importance that a distinctly moister climate must impart to it, whether it is held by nomads or a settled population.

Grazing grounds of *Nārin-kūr*.

In the easternmost portion of the valley, extending to about 93° 30′ longitude, the greater elevation necessarily makes the land chiefly profitable for grazing. We accordingly found this tract, of which the grazing grounds of Nārin-kūr are the centre, held by Turkī 'Tāghliks', subjects of the Wang of Hāmi, living in felt tents and moving their camps according to the seasons. It was easy to gather some idea of the extent of the flocks and herds owned by their headmen from the comfort and comparative wealth displayed at the summer quarters of one of them, the 'Kurmāl' Sūrūk Niāz, who hospitably received us at Kutārlik. Large stacks of wool, skins, &c., were there awaiting disposal to enterprising Kāshgarliks, who trade from Barkul to distant Siberian markets.

Chinese cultivation in valley of Barkul.

There was a complete and significant change in the ethnic setting when on October 2nd, after camping at Shōr-bulak, to the west of Nārin-kūr, we left behind us the last felt tents of the hill nomads and passed out of the Wang of Hāmi's territory near a lively stream that flowed from a thickly wooded side valley lying to the south-east. The steadily widening plain at the bottom of the valley afforded grazing grounds as rich as those we had previously passed; but hence onwards no flocks or herds were to be seen, only scattered patches of well-tilled fields with small groups of farms unmistakably built and occupied by Chinese settlers. The aspect of the country remained the same all the way to the roadside station of K'ou-ssŭ (Map No. 34. C. 1), where we struck the highway from Hāmi, and also during the long march of the next day, which under a grey wintry sky, with snow clouds hanging over the mountains, brought us to the town of Barkul. The crest of the high range to the south is under permanent snow practically all the way from west of the Barkul-dawān (Map No. 34. D. 2) to above Barkul town. Numerous streams descending from it give verdure to the slopes below the broad zone of conifer forest, which here reaches down to a level of about 7,000 feet; and where they debouch into the valley plain they provide abundant water for the irrigation of village lands.

Geographical position of Barkul.

The limited extent of the lands actually under cultivation in this wide fertile valley, the total absence of the flocks and herds for which it is so obviously well adapted, and finally its present occupation exclusively by Chinese, all these existing conditions find their ready explanation in the historical past of Barkul. This past is itself the outcome of the valley's geographical position. It will therefore be convenient to consider the geographical facts first before we briefly review the available data regarding the role played by Barkul in early and in recent phases of China's relations with the regions on either side of the T'ien-shan. The basin of Barkul, like the much smaller basin of the Tur-kōl adjoining it on the east, owes its existence to the T'ien-shan mountain system; this for a considerable distance farther west is represented by a single chain of no great height, but rises here, between the approximate longitudes of 92° and 94° 30′, in two parallel ranges and

[3] There was plenty of fir forest to be seen also in the small valleys descending towards Nārin-kūr from the north and north-east, though the map (No. 34. D. 2), through a draughtsman's error, does not mark it.

encloses those basins. The southern range, which lies in the main axis of the T'ien-shan, here attains heights which, for distances of about thirty-five miles in the case of the Barkul-tāgh (Map No. 34. B, C. 2) and about twenty-six miles in that of the Karlik-tāgh, rise well above the permanent snow line and culminate in a few peaks of close on or slightly over 14,000 feet. The range to the north, for which I was unable to ascertain any general name,[4] also has, in its central portion, a crest line of over 11,000 feet (Map No. 34. D. 1) and in places probably carries patches of permanent snow.

Effects of moister climate.

The great height of the southern range assures to it and the basins along its northern side much more precipitation than is received by the northern slopes of those portions of the same range which lie to the east of the Karlik-tāgh or to the west of the Barkul basin. The moister climate thus secured manifests itself not merely in the thick belt of conifer forest already referred to, which lines the northern slopes of the range between the longitudes mentioned, but also in the abundance of pasture to be found farther down and all along the bottom of the basins. The fact that the Barkul basin falls nowhere much below 5,000 feet, while that of the Tur-köl lies throughout over 6,000 feet, contributes to produce here climatic conditions far more favourable to pastoral life than could possibly be found either to the south or north of the basins. Of the ground northwards little is known beyond the fact that it lies much lower, and that though strings of wells make this 'Gobi' passable along certain lines, it affords but very poor grazing until the hills to the south-east of Kobdo, outliers of the Altai, are reached.

Aridity of area south of Barkul-tāgh.

Of the region which stretches south of the Barkul-tāgh it can be safely asserted that, as the surveys recorded in Map No. 34 show, it is all a waste of stone, gravel and sand except where subsoil water, gathering below the utterly barren glacis of the range, permits the creation of such small irrigated oases as are to be found between Taranchi and Hāmi (Map No. 34. B. 2, 3; C. 3). What patches of desert vegetation are to be found near them are barely sufficient for the needs of the traffic moving along the Hāmi–Turfān high road and for the winter grazing of the modest flocks owned by these small settlements.[5] Similar conditions prevail around Hāmi and eastwards, the few oases including Hāmi being limited in extent owing to the scanty amount of water available from the Karlik-tāgh for purposes of cultivation, while the southern slopes of the range are extremely rugged and except in the narrow deep-cut valleys quite barren.[6]

Historical rôle of Barkul basin.

From the geographical facts thus indicated in their broad outlines two conclusions of historical import may safely be drawn. One is that the Barkul basin with its easterly adjunct must always have exercised a special attraction for nomadic tribes in occupation, whether temporary or prolonged, of adjacent parts of south-western Mongolia. The other inference equally obvious is that the presence of such nomadic, and as such necessarily warlike, neighbours in this basin must have constituted a constant and very serious danger to the oases to the south, and also to such trade and traffic as might find their way along the route leading through them. Physical conditions have always restricted these oases to an area too small to support a population large enough to defend itself. At the same time the range rising above them could not afford them adequate protection against raids and attacks from the north; for the pass known as the Barkul-dawān, about 9,200 feet above sea-level (Map No. 34. D. 2), is never completely closed by snow and is easy enough to be practicable for carts during the greater part of the year. This pass gives convenient access from the eastern end of the Barkul basin straight to the main oasis of Hāmi and all the neighbouring

[4] To the portion which lies between the Tur-köl in the east and Nārin-kür in the west, I heard the designation of Kök-tun applied.

[5] For a brief description of this ground, see *Serindia*, iii. pp. 1154 sqq.

[6] For some account of the geographical conditions affecting the Hāmi oasis and the region along the foot of the Karlik-tāgh, cf. *Serindia*, iii. pp. 1147 sqq.; also *Desert Cathay*, ii. pp. 345 sqq.

settlements.[7] In addition to this pass, through which runs the high road between Hāmi and Barkul, there are others on either side, crossing the depression between the snowy portions of the range and likewise practicable for horsemen, except perhaps in the depth of winter.[8]

Geographical factors thus establish a strategic relation between Hāmi and the Barkul basin; and it follows from this relation that the route which leads through Hāmi and provides the most direct and easiest line of access from the Kan-su marches to the tracts on either side of the T'ien-shan, cannot be kept safely open for traffic and trade, unless the Barkul basin is also brought under effective control. All that we know from Chinese records about the history, both ancient and modern, of these two territories fully illustrates the nexus between them and its bearing upon the use of the important desert route from the direction of An-hsi and Tun-huang.

Section IV.—HISTORICAL RELATIONS BETWEEN BARKUL AND HĀMI

Nexus between Barkul and Hāmi.

The evidence afforded by the Former Han Annals in respect of the historical nexus that geographical facts have established between Barkul and Hāmi is not less significant because it is negative. We know that during the period of nearly two centuries which followed the first expansion of Chinese trade and political influence towards the Tārīm basin under the Emperor Han Wu-ti from 121 B.C. onwards, the Hsiung-nu or Huns, though driven by the Chinese out of the passage land along the northern foot of the Nan-shan, yet maintained their power unbroken to the north of the T'ien-shan. Thence they were able repeatedly to threaten, not only the Chinese control over the oases of the Tārīm basin, but also the far-stretched line of communication which connected them through the Lop Desert with the westernmost marches of Kan-su; it was to safeguard this line from their attacks that the Han Limes was pushed forward beyond Tun-huang.[1]

Hāmi route threatened by Huns from Barkul.

Throughout that period, which extended to the downfall of the Former Han dynasty soon after the beginning of the Christian era and for nearly fifty years after the succession of the Later Han dynasty in A.D. 25, Hāmi and the route leading through it remained wholly outside Chinese domination and even outside the scope of Chinese military enterprise. It is for this reason that no account of Hāmi is to be found in the 'Notices of the Western Regions' contained in the Former Han Annals, and that they are similarly silent about the region of Barkul. The latter must during all that time have been held by Hun tribes, and probably served as a main base for attacks against the Chinese border across the Pei-shan ranges south-eastwards. I have explained elsewhere how this ever-present threat of the Huns from across the easternmost T'ien-shan determined the direction of the 'new northern route', which the Chinese in A.D. 2 opened from the ancient 'Jade Gate' in order to communicate with 'Posterior Chü-shih' or the territory around the present Guchen.[2] To reach this ground, which, like Turfān immediately to the south, had passed early under their control, the route via Hāmi would undoubtedly have been the easiest. Yet Chinese administrative policy, always disposed to face physical difficulties rather than risks from hostile

[7] I regret that I was unable either in 1907 or 1914 to visit the pass myself. But it was mapped on the former journey by R. B. Lāl Singh, whose survey shows that the top of the pass lies on a perfectly open plateau offering no facilities for defence; nor is there apparently any strong defensive position to be found lower down on the southern approach to the pass.

[8] Of these passes the Kulluk-dawān to the west seems higher, the Chagan-bulak-dawān to the east about 1,000 feet lower than the Barkul-dawān. I may add here that there is a pass known as Belü-dawān (not marked in the map) leading due south of the Tur-köl across the Karlik-tāgh into the valley of Nārin (Map No. 34. D. 2). It is shown in Mr. Carruthers' map with a height of close on 11,000 feet and appears to be practicable only during the summer and early autumn. Farther east the Karlik-tāgh can be crossed at any season by the route leading from Tāsh-bulak to Atürük via Tal.

[1] Cf. *Serindia*, ii. pp. 724 sqq.; Chavannes, *Documents*, pp. v. sqq.

[2] Cf. *Serindia*, ii. pp. 705 sqq.

barbarians, kept the new road well away from Hāmi and carried it through waterless desert wastes, which at least offered protection from those dreaded nomadic foes.

Barkul during Later Han period.

China's political control over the 'Western Regions' had completely ceased for over sixty years when, apparently through a weakening of Hun power, the Emperor Ming of the Later Han dynasty was enabled in A.D. 73 to start those operations which, mainly through the efforts of the famous general Pan Ch'ao, brought the Tārim basin and the adjoining territories again under Chinese domination. This time it was from the side of Hāmi and the easternmost T'ien-shan that the Chinese advance took place, and to this fact we owe the comparative abundance of references in the Later Han Annals to the region of Barkul and the historical events that it witnessed. These data are supplemented by an interesting Chinese inscription of A.D. 137 preserved near the town of Barkul, and its publication in M. Chavannes' masterly treatise *Dix inscriptions chinoises de l'Asie Centrale*[3] has given that great scholar occasion to collect in the same place a number of Chinese records that throw light on the role played by Barkul during the second epoch of China's Central-Asian expansion.

Huns of 'White Mountains'.

The importance of this role is brought out in a striking fashion by the account of the imperial deliberations in A.D. 72 which preceded the start of that renewed expansion.[4] We are told in it that one of the military leaders who subsequently were entrusted with the initial enterprise urged the following view: 'It is necessary first to attack the tribes of the *Po-shan* 白山 (the 'White Mountains') and to secure *I-wu* 伊吾 (Hāmi) . . . At I-wu there is the tribe *Hu-yen* 呼衍 which is in the south of the Hsiung-nu; to destroy it will mean to break the left (eastern) horn [of the Hsiung-nu]. After that it will be possible to attack the Hsiung-nu.' The term 'White Mountains', as a modern Chinese text quoted by M. Chavannes points out, was used in Han times for the designation of the snowy range south of Barkul. But we can scarcely go wrong in assuming that it extended also to the immediately adjoining Karlik-tāgh.

Chinese advance upon Hāmi in A.D. 73.

The account given of the operations actually carried out in A.D. 73 directly takes us to the eastern extremity of the T'ien-shan.[5] We are told in the Later Han Annals that they were undertaken against the Northern Huns by three separate forces starting from *Chiu-ch'üan* 酒泉 or Su-chou, *Chü-yen* 居延 which is said to be situated near the termination of the Etsin-gol, and from *P'ing-ch'êng* 平城, near Ta-t'ung fu in Shan-hsi. Leaving aside the last column, which was manifestly intended to threaten the Northern Huns in their main seats on the Altai, it is clear that the other two must have been operating towards the Karlik-tāgh from the south-east and east across the Pei-shan. The force operating from the side of Su-chou reached the T'ien-shan, defeated the Hu-yen king with great slaughter and put him to flight as far as the lake *P'u-lei* 蒲類 or the lake Barkul. The victory was gained under the leadership of Pan Ch'ao and first brought distinction to this great commander. A garrison was then left in the town of I-wu or Hāmi. In the following year, A.D. 74, Chinese forces, moving out 'from the K'un-lun 崑崙 barrier of Tun-huang,[6] attacked and defeated the barbarians of the White Mountains on the shores of the lake P'u-lei'. The advance was continued to *Chü-shih* 車師, i.e. the territory comprising both Turfān and the tract about the present Guchen to the north of it, and a 'Protector of the Western Countries' was installed there.

Huns of Barkul defeated.

It is clear from the notices here summarized that the Chinese forces intended to re-establish imperial control in the 'Western Countries' had first to defeat the Huns established in the eastern

[3] See Chavannes, *Dix inscriptions*, pp. 17 sqq.

[4] Cf. *ibid.*, p. 19, for an extract from the *T'ung chien kang mu*.

[5] See *ibid.*, pp. 19 sq.

[6] Regarding this head-quarters station on the Limes of Tun-huang, probably guarding the section to the NNE. of the oasis through which the present route towards Hāmi passes, cf. *Serindia*, ii, p. 754; Chavannes, *Documents*, p. 26.

extremity of the T'ien-shan and particularly in the big valley of Barkul, before they could secure a safe bridge-head at Hāmi for the shortest and easiest route across the Pei-shan desert from the side of Tun-huang. Thus the opening of the route which to the present day has remained the main line of communication between China and Central Asia became possible only after the Hun tribe holding the Barkul valley had been signally defeated and the Hāmi oasis wrested from their domination. Of the name Hu-yen 呼衍 M. Chavannes has shown that it was borne by one of the great clans of the Hsiung-nu or Huns, which is already mentioned by Ssŭ-ma Ch'ien as amongst the noblest of the nation.[7] If we find just this clan established on the easternmost T'ien-shan, we may perhaps see herein a sign that the great natural advantages which the valleys of Barkul and Tur-köl offered for nomadic life were then duly appreciated.

Subsequent struggles for Hāmi.

That the Chinese victories of A. D. 73–4 did not finally oust this powerful Hun tribe from the region of Barkul is abundantly proved by the records contained in the Later Han Annals of subsequent struggles for Hāmi. As early as in A. D. 77 the Chinese withdrew from the oasis, which again fell under Hun domination. Not until a great defeat had been inflicted upon the Huns elsewhere was Hāmi reoccupied by Chinese troops in A. D. 90.[8] The fruits of the great work accomplished by Pan Ch'ao, who in the same year had assured the submission of the whole of the 'Western Countries', were completely lost by A. D. 107, when the conquered territories were once again abandoned to the Huns. A renewed attempt in A. D. 119 to hold Hāmi ended with the destruction of the Chinese force sent there, and the Hsiung-nu, from their convenient base on the easternmost T'ien-shan, were again free to ravage the westernmost marches of Kan-su.[9]

Operations of Pan Yung.

A vivid picture of the situation that resulted is conveyed by the memorial addressed in A. D. 123 by Chang Tang, Governor of Tun-huang, to the Throne, and reproduced by the *Hou Han shu*.[10] 'Considering that among the barbarians of the North the *Hu-yen* king is constantly on the move here and there between the lake *P'u-lei* (Lake Barkul) and the lake *Ts'in* 秦; that he imposes his law upon the Western Countries and joins them to ravage and to plunder', he urges as the best plan the assembling at the *K'un-lun* barrier of a force of over two thousand men drawn from the command of Chiu-ch'üan. 'Then one will attack the Hu-yen king and separate him from what to him is like his root.' This report is of special interest because it definitely indicates the valleys of Barkul and Tur-köl as the chief haunt of the Hun chief whose activity was particularly felt on the Tun-huang border; for there can, I believe, be little doubt that Dr. Hermann is right in identifying the 'lake Ts'in' with the Tur-köl, the only lake in the area, other than the lake of Barkul, to which reference can reasonably be intended in such a connexion.[11] Considering the comparatively small force proposed for this expedition, it is clear that its objective could not have been at a very great distance from Tun-huang. The plan recommended as the best by Chang Tang was not adopted by the Emperor. But instead, Pan Yung, the son of Pan Ch'ao, was in A. D. 123 sent to establish a Chinese military colony at Luchun in the Turfān basin. Thence he succeeded in A. D. 126 in defeating the 'Hu-yen king of the Hsiung-nu' and in securing for a time for 'the six kingdoms of *Chü-shih* 車師' freedom from Hun inroads.[12]

The 'six kingdoms of *Chü-shih*'.

There is reason to believe that the territories designated by this term included the Barkul basin. I shall have to refer to others among them in connexion with the ground that we traversed farther west. We may therefore conveniently consider here the brief notice that the account of

[7] See Chavannes, *Dix inscriptions*, p. 18.

[8] Cf. Chavannes, *T'oung-pao*, 1907, p. 158.

[9] See *ibid.*, 1907, pp. 160 sq.; also 1906, p. 218.

[10] See *ibid.*, 1907, p. 162; also *Dix inscriptions*, pp. 20 sq.

[11] Cf. Hermann, *Seidenstrassen*, p. 75. The note quoted by M. Chavannes, *Dix inscriptions*, p. 21, from the commentary on the *Hou Han shu* connects the lake Ts'in with the country of *Ta Ts'in*, i.e. the Roman Orient. This attempt to identify the lake with the 'Western ocean' only shows that the name had become unknown at the time when the commentary was composed.

[12] See Chavannes, *Dix inscriptions*, p. 22.

the 'Western Countries' in Chapter CXVIII of the *Hou Han shu* devotes to these small principalities. We are told there: 'The anterior tribe and posterior tribe [of Chü-shih] with the eastern *Chü-mi* 東且彌, *Pei-lu* 卑陸, *P'u-lei* 蒲類 and 移支 *I-chih* constitute [what are called] the six kingdoms of Chü-shih 車師六國; to the north, they border on the Hsiung-nu.'[13] Among the territories here enumerated the 'anterior tribe' and the 'posterior tribe' of Chü-shih undoubtedly correspond, as has long been recognized, to the present Turfān district and the Guchen tract immediately to the north of it, on the opposite slopes of the T'ien-shan (Map No. 28, c, d. 1–3).[14] Of *Pei-lu*, which the *Wei lio* mentions under the slightly different name of *Pi-lu* 畢陸, it must suffice here to state that, according to the indications furnished by the position it occupies in the topographically arranged list given by the *Wei lio* of the principalities along the 'new northern route', it must be looked for in all probability along the string of oases that line the northern foot of the high snowy portion of the T'ien-shan known as the Bogdo-ula range, between Guchen and Urumchi.[15]

Name *P'u-lei* transferred to west.

The name *P'u-lei* 蒲類 given to the fifth of the 'kingdoms' is undoubtedly that borne by the Barkul lake. But the account given by the *Hou Han shu* of this territory makes it equally certain, as already pointed out by M. Chavannes, that it must have been situated in a valley of the T'ien-shan much farther away to the west, probably well beyond the present Urumchi.[16] M. Chavannes has also indicated, in the same passage of the *Hou Han shu*, what is a most likely explanation of this transference of the name P'u-lei. It records that, at a period when the 'Western Countries' were controlled by the Hsiung-nu, the king of P'u-lei had offended the 'Shan-yü' 單于 or supreme chief of the Huns. The angry Shan-yü thereupon deported more than six thousand people of P'u-lei to a territory known as A-o 阿惡, situated at a distance of ninety marches from Posterior Chü-shih on the extreme right or western flank of the Hsiung-nu. But some of the exiled people 'in their wretchedness escaped thence to this mountain gorge and settling there founded a kingdom'.[17]

Barkul designated as *I-chih*.

In immediate continuation of this account we are told that 'the kingdom of I-chih 移支 occupies the territory of P'u-lei', and M. Chavannes was evidently right in concluding from this statement that I-chih was situated in the region of the Barkul lake. The description given of its people fully accords with this location. 'There are over a thousand households, with more than three thousand individuals and more than a thousand good fighting men.' The people are described as brave and warlike, habitually given to robbery and leading a nomadic existence, without practising agriculture. We see clearly that whether the people occupying I-chih, i.e. the Barkul valley, at the time when they were thus described by the Later Han Annals, were a Hun tribe reduced to subjection or of another origin, the conditions favouring pastoral life in the Barkul valley had not changed.

Kingdom of 'Eastern Chü-mi'.

There still remains the sixth 'kingdom', that of 'Eastern Chü-mi 東且彌', to be identified, and for location of this, too, the list of the *Wei lio* affords definite topographical guidance. The territories of Eastern Chü-mi and Western Chü-mi are the first to be named in the list among those dependent upon Posterior Chü-shih through which ran the 'new northern route' after emerging

[13] Cf. Chavannes, *T'oung-pao*, 1907, p. 211.

[14] See below, pp. 555 sqq.; Chap. xvii. sec. i, ii.

[15] Cf. Chavannes, *T'oung-pao*, 1905, p. 557. M. Chavannes in his notes on this list of the *Wei lio* has rightly emphasized the importance attaching to its topographical indications, as the territories are enumerated in their order from east to west.

The 'kingdoms' of *Chü-mi*, *Pei-lu* and *P'u-lei*, all of them divided into eastern and western or nearer and ulterior territories, figure also in the 'Notes on the Western Regions' in Book xcvi of the *Ch'ien Han shu*. But, as already observed by M. Chavannes, the bearings and distances there recorded are unfortunately too confused to afford safe clues to the location of these territories.

[16] See Chavannes, *T'oung-pao*, 1905, p. 557, note 5; 1907, p. 209.

[17] Cf. Chavannes, *T'oung-pao*, 1907, pp. 209 sq.

from the desert to the north-west of the Jade Gate barrier.[18] I have shown in *Serindia* that this route between the Jade Gate and Posterior Chü-shih, first opened A.D. 2, must necessarily have crossed the T'ien-shan by the easy saddle over which passes the present Chinese cart-road from Hāmi to Guchen, between the stations of Ch'i-ku-ching and Ta-shih-t'o (Map No. 31. C. 1; D. 2).[19] Eastern Chü-mi, like the rest of the small 'kingdoms' dependent on Posterior Chü-shih, must have lain on the northern side of the T'ien-shan. Hence we can safely locate it in the valleys and plateaus to the west of the Barkul lake which are reached across that saddle and which we crossed on our way from Barkul to Guchen, as seen in Maps Nos. 34. A. 1; 31. A–D. 1.

Description of 'Eastern Chü-mi'.

I shall have occasion farther on to give a brief description of this region; but I may at once observe that its physical character entirely agrees with what the *Hou Han shu* tells us of the Eastern Chü-mi.[20] The territory is there said to include over three thousand households and some two thousand fighting men. Its people are described as nomads living in huts and tents and leading a pastoral life, agriculture being practised only to a small extent. The T'ien-shan sinks to a much lower elevation to the west of Barkul, before it rises again to a crest line carrying permanent snow in that portion of the range which divides Guchen from Turfān. Consequently there is less moisture to be found in the valleys west of Barkul until the forest-clad slopes east of Mu-li-ho (Map No. 31. A. 1) are reached. Yet grazing grounds are to be found in most of this area, and also patches of cultivation, which gradually increase in size and importance as the tract of Guchen is approached. Since Western Chü-mi is not mentioned in the Later Han Annals we may conclude with their commentator, quoted by M. Chavannes, that this territory had then probably been absorbed by Eastern Chü-mi.[21] This again would account for the latter being credited with a population considerably in excess of that attributed to I-chih or the Barkul basin.

Historical data for Barkul.

From this survey of the territories along the northern slopes of the T'ien-shan with which Barkul appears, at any rate for a time, to have been linked, we may now return to the remaining historical data concerning it preserved in records of the Later Han period. The freedom from Hun inroads secured by Pan Yung was destined to be but a short one. As early as A.D. 131 we read that the Chinese were under the necessity of placing a military colony at I-wu or Hāmi in order to prevent the Hsiung-nu from making it a base for their depredations.[22] In A.D. 135 Posterior Chü-shih was again attacked by the Hu-yen king of the Northern Hsiung-nu, and a Chinese force sent against him from Tun-huang failed to achieve success.[23]

Inscription of P'ei Ts'ên, A.D. 137.

A better result attended the effort made two years later by P'ei Ts'ên 裴岑, prefect of Tun-huang, of whose victory the only surviving memorial is an inscription, originally set up in a temple by the Barkul lake and now preserved in a temple outside the north-west corner of Barkul town.[24] It records the success gained by P'ei Ts'ên, who, with a force of three thousand men, is said to have destroyed the king Hu-yen and his people in a battle fought in September A.D. 137. But this victory, too, which curiously enough the historical texts of the Later Han pass over in silence, had no lasting result. In A.D. 151 the Hu-yen king, as the *Hou Han shu* tells us, was ravaging I-wu or Hāmi with three thousand horsemen. A Chinese detachment sent to the east of the P'u-lei or Barkul lake was completely annihilated by him. A Chinese force sent from Tun-huang in the same

[18] Cf. Chavannes, *T'oung-pao*, 1905, pp. 556 sq.

[19] See *Serindia*, ii. pp. 705 sq.

[20] Cf. Chavannes, *T'oung-pao*, 1907, p. 210.

[21] See *ibid.*, 1905, p. 557, note 1.

[22] Cf. Chavannes, *T'oung-pao*, 1907, p. 167.

[23] See Chavannes, *Dix inscriptions*, p. 23; *T'oung-pao*, 1907, pp. 213 sq.

[24] For this inscription, first discovered in 1757, cf. Chavannes, *Dix inscriptions*, pp. 17 sqq. It was previously edited and translated by M. Devéria in Grenard, *Mission D. de Rhins*, iii. pp. 136 sq.

The temple which now shelters this, the oldest epigraphic record of Chinese Turkestān, is appropriately enough dedicated to the Chinese war-god Kuan-ti. It offered me peaceful shelter in October, 1914.

year to succour I-wu marched to the P'u-lei lake. But the evasive chief had retreated, and the Chinese retired without having achieved any success.[25] This is one of the last events relating to the 'Western kingdoms' that the Later Han Annals record, and with the steady decay of Chinese influence beyond the frontiers that accompanied the internal disintegration of the Empire during the closing reigns of the Later Han dynasty, our sources of information about the territories along the T'ien-shan dry up for centuries.

Turkish tribes in possession of Hāmi.

It is probable enough that the valleys on the northern slopes of the T'ien-shan offering attractive grazing grounds continued during the succeeding centuries to be haunted by tribes of the Hsiung-nu or Huns, and subsequently, after these had moved westwards, by the Juan-juan or by Turkish tribes like the Tölös subject to the latter. But it is not until the beginning of the seventh century that, owing to the relations which China had resumed with Central Asia under the Sui emperors, and which the 'forward policy' of the founder of the T'ang dynasty and his successors was soon to develop, some light is again thrown upon the conditions prevailing in this region by the Chinese records accessible to me. The Tölös or *T'ieh-lo* 鐵勒 of the Chinese, later famous under the name of Uighur, after their victory over the Kagan of the Western Turks in A. D. 605, are said to have become masters of I-wu or Hāmi as well as of Kao-ch'ang (Turfān) and Yen-ch'i (Kara-shahr).[26] The chief of I-wu, who about A. D. 608 made his submission to the Sui Emperor, is designated by a Turkish title, and it is probable that he belonged to a tribe established in the T'ien-shan valleys to the north.[27] I-wu subsequently passed again under the domination of the Western Turks, and Chinese control was not definitely established there until A. D. 630. It is significant, in view of the political interdependence which, as explained above, geographical conditions create between the Hāmi oasis and the valleys adjoining it north of the T'ien-shan, that this natural base for the T'ang conquest of the 'Western Kingdoms' was not finally secured until the Chinese had in A. D. 630 won their decisive victory over the souverain chief of the Northern Turks.[28]

Inscription recording expedition against Turfān, A. D. 640.

An attack which Ch'ü Wên-t'ai, king of Kao-ch'ang or Turfān, and the Kagan of the Western Turks directed some years later against Hāmi was followed by a great Chinese expedition in A. D. 640, which led to the conquest of Turfān and, in its ultimate effects, to the firm establishment of Chinese supremacy over the territories occupied by the Western Turks. To this expedition we owe an interesting epigraph set up in the same year on the top of the Barkul pass and still to be found there. This long inscription, which is engraved on a stēlē and has been edited and translated by M. Chavannes from an impression secured by M. Bonin, commemorates the exploit of the general Chiang Hsing-pên 姜行本 commanding one of the three armies sent by the Emperor T'ai-tsung for the subjection of Turfān. In the fifth month of the Chinese year corresponding to A. D. 640, he took his troops to the top of Mount *Shih-lo-man* 時羅漫; thence ascending to *Hei-kan-so* 'they cut down the trees until the forests of the mountains were exhausted' and within a month constructed siege machines such as ballistae and other engines of war with which to meet the task awaiting the 'army of Kao-ch'ang'. Neither the redundant rhetorics of the praise bestowed upon the commander and his valiant troops, nor the poetical eulogy with which the inscription closes, furnish local data.[29] But there can be no doubt that the force moved to the pass and thence to the heights of *Hei-kan-so* 黑紺所 because, then as now, no forest furnishing an adequate supply of

[25] See Chavannes, *T'oung-pao*, 1907, p. 214.

[26] See Chavannes, *Turcs occid.*, p. 89, note 3.

[27] See *ibid.*, p. 169, note 8.

[28] Cf. *ibid.*, p. 170.

[29] The greatness of the physical difficulties which the march of the large Chinese forces across the Pei-shan desert must have involved is, however, reflected in the third strophe of the poem. Its words in M. Chavannes's rendering: 'Les nuages de la frontière s'accumulaient de manière à troubler la vue ;—le vent des barbares faisait l'obscurité en plein jour', clearly allude to the formidable sand-storms which are frequently encountered during spring and summer by those crossing the desert south of Hāmi.

timber could be found anywhere to the south of this easternmost portion of the T'ien-shan. What precise locality is meant by *Hei-kan-so* I am unable to determine. But evidently some thickly wooded portion of the northern slopes of the range within easy reach of the Barkul pass is referred to.[30]

Siege-train constructed on heights of *Hei-kan-so*.

M. Chavannes has already pointed out that the inscription does not record the successful issue of the campaign, which was secured later by the taking of Kao-ch'ang in the eighth month of the same year, but the preparation of the siege-train by which this result was effected.[31] The shortness of the time which elapsed between Chiang Hsing-pên's arrival on the range and the date of the inscription recording his exploit (the 25th day of the sixth month corresponding to July 20, A. D. 670) is explained by the fact that, as noted by his biographer in the *T'ang shu*, the inscription was engraved on a stēlē from which an earlier record of Pan Ch'ao's great achievements had first been removed.[32] The famous Han general had, as already mentioned, won his first distinction by defeating the Huns of Hu-yen on the shores of Lake Barkul. Owing to the wish of the T'ang commander, more than five and a half centuries later, that the memory of his own engineering feat should be promptly perpetuated by an inscription on a stone, we have thus probably lost a record of still greater historical interest.

We may reasonably assume that advantage was taken of the very large forces which the Emperor T'ai-tsung had sent for the conquest of Turfān,[33] to undertake on the same occasion an advance north of the range against the territory which in Han times was known as 'Posterior Chü-shih' and the chief place of which was destined soon to become, under the name of *Pei-t'ing*, one of the 'four garrisons' securing T'ang supremacy over the 'Western kingdoms'. But the T'ang Annals show that this territory submitted after Kao-ch'ang had been taken by the Chinese, and that it was before Kao-ch'ang that the siege-train constructed in the mountains of *Shih-lo-man*[34] by the army's engineer-in-chief had been effectively put to use.

Turkish tribes occupying Barkul territory.

The conquest of the Turfān region and the subsequent establishment, during nearly a century and a half, of Chinese control over the 'Western kingdoms' did not make any change in the occupation of the Barkul territory by Turkish tribes. The notice in the T'ang Annals on the *Sha-t'o* 沙陀 shows that this tribe, belonging to the *Ch'u-yüeh* 處月 branch of the Western Turks, 'lived to the south of Mount *Chin-so* 金娑 and east of the lake *P'u-lei*' (Lake Barkul): there was a great stony desert there called *Sha-t'o*; thence they were called *T'u-chüeh* (i. e. Turks) of Sha-t'o.[35] From another notice in the same text we learn that in A. D. 653 the territory of the Ch'u-yüeh was divided into two districts of 金滿 *Chin-man* and *Sha-t'o*. Chin-man is identical with the seat of the *Pei-t'ing* protectorate, which can be located with certainty near the present Jimasa, west of Guchen,

[30] *Hei-kan-so* 黑紺所 (literally meaning 'the place of black purple colour') may, perhaps, be the head of the valley towards the Bökunat-dawān (Map No. 34. D. 2), where, judging from the slopes we saw farther north, conifer forest growth is likely to be particularly abundant.

[31] See Chavannes, *Dix inscriptions*, p. 36. For the use made of these engines of war before Kao-ch'ang, cf. Chavannes, *Turcs occid.*, p. 106.

[32] See Chavannes, *Dix inscriptions*, p. 34.

[33] Lines engraved on the side faces of the stēlē mention forces of hundred and fifty thousand men under each of two assistant commanders of the Chinese army; cf. Chavannes, *Dix inscriptions*, pp. 32 sq. Even taking into account the fact that the numbers mentioned comprised big contingents of Turk and Tölös (Uighur) auxiliary cavalry (cf. Chavannes, *Turcs occid.*, p. 105), it seems very difficult to explain how such large numbers could possibly be fed along desert routes such as those from An-hsi to Hāmi and thence to Turfān.

But, no doubt, they comprised all those employed on the lines of communication—and we have other historical examples of wonderful Chinese performances in the matter of 'transport and supplies', as illustrated by the Êrh-shih general's march through the Lop Desert (see above, pp. 341 sq.) and Kao Hsien-chih's march over the Pāmirs and Hindu-kush; cf. *Serindia*, i. pp. 53 sqq.; *Geogr. Journal*, 1922, Febr., pp. 109 sqq.

[34] For this name as a general designation of the easternmost T'ien-shan, cf. Chavannes, *Turcs occid.*, p. 18, note 2; also p. 305.

[35] See Chavannes, *Turcs occid.*, p. 97.

as will be seen below.[36] Hence it is safe to assume, as suggested by M. Chavannes, that while one portion of the Ch'u-yüeh was in occupation of the T'ien-shan slopes west of the Barkul lake, the other, represented by the Sha-t'o, held the valleys to the east of it.[37] The fact that I-p'i Tu-lu, Kagan of the Western Turks, ravaged Hāmi in A.D. 642 with the assistance of the Ch'u-yüeh fully accords with this location.[37a] Mount *Chin-so*, apparently not otherwise mentioned, may with some probability be identified with the range extending all along to the north of the valleys of Tur-köl and Barkul and having its continuation westwards to about 91° longitude. The 'great stony desert' of *Sha-t'o* might well be looked for on the northern slopes of this range, about which I am unable to trace any information beyond the fact that they are visited by the herdsmen of Tur-köl and Nārin-kūr for winter grazing.

Tribe of the *Sha-t'o*.

The Sha-t'o are mentioned as forming one of the governments created by the Chinese out of the vast dominion of the Western Turks after their final defeat in 658–9,[38] and details about certain of their chiefs are recorded in the notice above quoted from the T'ang Annals down to the time when Tibetan aggression began to shake Chinese supremacy over these regions. It is of interest to note that late descendants of those chiefs rose to importance during the troubles following the T'ang period, by founding the short-lived Posterior T'ang, Chin, and Han dynasties (923–51 A.D.).[39]

Later history of Hāmi and Barkul.

For close on a thousand years after the period covered by the above T'ang notices relating to Barkul no specific information from Chinese sources regarding this territory appears to be accessible in translation. But there can be little doubt that, like Hāmi, it was held by Uighur chiefs during the greater part of later mediaeval times.[40] More abundant notices are available for the chequered history of Hāmi in Ming times. But they do not tell us what part the Barkul valley played in the frequent inroads to which the oases south of the easternmost T'ien-shan were exposed.[41] With the rest of the territories now comprised in Chinese Turkestān, Hāmi had passed under the power of the Dzungars when the Chinese under the great Emperor K'ang-hsi resumed towards the close of the seventeenth century that policy of Central-Asian expansion which had been in abeyance for fully nine hundred years. K'ang-hsi's great victory over Galdan, the supreme chief of the Dzungars, won in 1696 in the Kobdo region, marks the beginning of the reconquest of China's ancient Central-Asian dominion. Significantly enough it was in the very year of that victory far away in the Mongolian north-west that Hāmi made its definite submission, and that the route leading to it from Barkul was secured by a Chinese post,[42] like other routes of approach to that important base.

Hāmi, though garrisoned by Chinese troops, remained exposed to Dzungar attacks for nearly half a century longer, and we are repeatedly told of Chinese forces sent to Barkul and posts established in that territory to help in warding them off.[43] But it was not until the successful operations initiated by the great Emperor Ch'ien-lung had led, in 1759, to the complete conquest of Dzungaria and of the Tārīm basin, that security was finally achieved for the high road past Hāmi which links the 'New Dominion' with China.

Turkestān retaken from Tungans.

Where clearly defined geographical conditions reign supreme and are so little affected by human activity as on both sides of the Eastern T'ien-shan, history must necessarily often repeat itself even in details. After 1863 both Dzungaria and the Tārīm basin were lost to the Empire through the rebellion of the Tungans, or Muhammadan Chinese, who formed a large portion of the Chinese

[36] See below, p. 555.

[37] See Chavannes, *Turcs occid.*, p. 272.

[37a] See *ibid.*, p. 97.

[38] Cf. Chavannes, *ibid.*, p. 272.

[39] Regarding the transfer of the Sha-t'o to the Kan-su marches, perhaps to the Nan-shan, south of Kan-chou, cf. Kao Chü-hui's account of A.D. 938, quoted in *Serindia*, iii. p. 1129, and the references there given.

[40] See Bretschneider, *Mediaeval Researches*, ii. pp. 177 sqq.

[41] See *ibid.*, ii. pp. 180 sqq.

[42] Cf. Imbault-Huart, *Le pays de Hami*, pp. 45 sq.

[43] See *ibid.*, pp. 48 sqq.

garrisons in the 'New Dominion'. Kan-su, too, fell into the power of Tungan rebels and was not recovered by the imperial forces until 1873. It was here that Tso Tsung-t'ang started the preparations for the campaign which was to restore to the Empire its lost Central-Asian dominion.

The possession of Hāmi as a base was an indispensable condition for the success of the operations, which were actively commenced in 1874. But it was not by an advance on the direct route through the Pei-shan that this base was secured. The Chinese force destined to effect this object moved first far away north into Mongolia and thence early in 1875 took Barkul. Thereupon Hāmi also was quickly secured, and the direct route through the desert south-eastwards opened.[41] By means of this route it became possible gradually to assemble the armies which in 1876, moving forward towards Kulja on the line of Guchen, Urumchi and Manas, overthrew the Tungan confederacy in the territories north of the T'ien-shan; a year later they put an end to Yāqūb Bēg's Muhammadan kingdom by an advance from Hāmi upon Turfān and by the rapid conquest of the Tārīm basin which followed.[42]

Hāmi used as base, 1875–77.

[41] Cf. Boulger, *History of China*, ii. pp. 480 sq.

[42] See *ibid.*, pp. 482 sqq.



PRINTED IN ENGLAND AT THE UNIVERSITY PRESS OXFORD
BY JOHN JOHNSON PRINTER TO THE UNIVERSITY


CENTRAL ARCH
New Delhi